



The EQF-LLL and the QF-EHEA Issues of Compatibility

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Euro-Med Meeting for Bologna Experts

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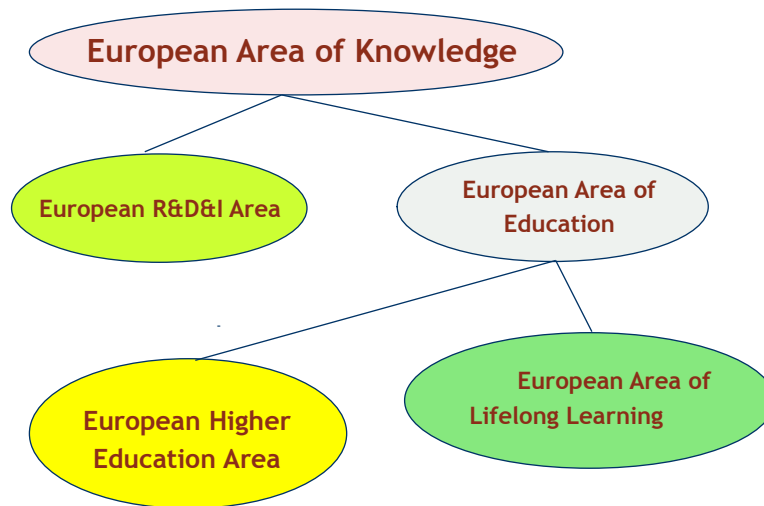


To say what I am going to say...

EQF-LLL and QF-EHEA - Issues of compatibility

- ① **Setting the stage**
 - ① From Bologna to Leuven... and beyond - the core of the reforms
- ② **Qualifications Frameworks - Which... What... How....**
 - ② QF complementary layers - Meta Frameworks
 - ② QF complementary layers - Sectoral Frameworks
 - ② QF complementary layers - Descriptors at Syllabus level
- ③ **Closing Notes**

The Bologna Process, 10 Years after... The European Area of... Knowledge... still under construction till ... 2020 !!!....



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The Bologna Process What needs to be understood

- ☞ Life over the past 25 years - A global World living in a paradigm of **COOPETITION = COOPERATION + COMPETITION**
- ☞ Understand the Bologna Process as one of the dimensions of the prevailing strategy for European development and adapting to this prevailing context
- ☞ 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

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Bologna Reforms Issues concerning Policy Areas

- ☞ From a social and economical point of view - to guarantee development and competitiveness through -
 - ✓ The increment of transnational cooperation and mobility, both in higher education and in R&D
- ☞ From a more political point of view -
 - ✓ To guarantee the Social Dimension
 - ✓ To promote Employability
 - ✓ To promote the External Dimension of the European model
 - ✓ To meet the Demographic Challenge
 - ✓ To meet the challenges posed by Global Competition - 'Borderless Higher Education Market'

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The Core of the Bologna Reforms Structure and Substance for the Education Area (I)

- ☞ The Structure - We still have to fill it in
 - ✓ A Degree Structure - QUALIFICATIONS FRAMEWORKS
 - ✓ A System to measure work and OUTCOMES - ECTS
 - ✓ A Way to document qualifications - DIPLOMA SUPPLEMENT
 - ✓ A System to guarantee transparence - QUALITY ASSURANCE
 - ✓ Agreements for Recognition of Qualifications

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The Core of the Bologna Reforms Structure and Substance for the Education Area (II)

- ☞ **The Substance - to a large extent still to model and implement**
 - ✓ **New contents... closer to more immediate Societal concerns**
 - ✓ **Teacher-Centred to Student-Centred methodologies**
 - ✓ **Teaching based on Teacher Inputs to Learning Centred in well defined objectives - Learning Outcomes**
 - ✓ **Teaching Times to Student Workloads required to achieve desired Learning Outcomes**

The Core of the Bologna Reforms The Relevance of the Substance EUA: New methods and new Publics for Higher Education

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

The Core of the Bologna Reforms

The Substance - The Latecomer or the Ugly Duck?

Use of key terms in the Bologna Communiques

	Learning Outcomes	Student Centred...	Frameworks
Bologna, 1999	0	0	0
Prague, 2001	0	0	2
Berlin, 2003	1	0	6
Bergen, 2005	1	0	10
London, 2007	4	2	15
Leuven/Louvain-La-Neuve, 2009	4	3	8

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The Core of the Bologna Reforms

Keywords characterizing Structural Issues

- ☞ The name of the game is **BUILDING TRUST**
- ☞ **TRUST GOES WITH MOBILITY, COOPERATION, 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**
 - ✓ **RECOGNISED QUALITY ASSURANCE PROCEDURES**

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 - ① From Bologna to Leuven... and beyond - the core of the reforms
 - ② **Qualifications Frameworks - Which... What... How....**
 - ② **QF complementary layers - Meta Frameworks**
 - ② QF complementary layers - Sectoral Frameworks
 - ② QF complementary layers - Descriptors at Syllabus level
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Qualifications Frameworks in Strictus Sensus What are Qualifications Frameworks?

- ☞ **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.
- ☞ 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 Frameworks in Lactus Sensus I - The different layers - from general to specific...

- ☞ **High Level Descriptors**
 - ✓ The QF-EHEA - Qualifications Framework for the European Higher Education Area
 - ✓ The EQF-LLL - European Qualifications Framework for Lifelong Learning
- ☞ **Sectoral Descriptors**
 - ✓ Ideally resulting from wide transnational agreements
 - ✓ The TUNING methodology,
 - ✓ In Engineering - TU-3 descriptors, CDIO, EUR-ACE, ABET...
- ☞ **Specific Descriptors**
 - ✓ For each discipline, thus depending on the sector
- ☞ **Contents - core curricula - Working Parties on Education...**
 - ✓ Specialists opinion, link to Learning Outcomes and Workload
 - ✓ Significant work of European Working Parties...

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Qualifications Frameworks in Lactus Sensus II - The different layers - Who does what...

- ☞ **High level descriptors - Meta Frameworks**
 - ✓ Characterized at institutional level of governments and stakeholders
 - ✓ They represent the 'legal crust'
- ☞ **Complemented by Sectoral and Specific descriptors**
 - ✓ By area and specialty
 - ✓ In close cooperation with higher education institutions and professional associations
 - ✓ In transnational cooperation
 - ✓ They represent Bologna in practice
- ☞ **Complemented by Curriculum descriptors - core contents**
 - ✓ Typically developed in Education Working parties and Academic Consortiuns, at European Level, or within regulatory bodies at national level
 - ✓ They are one of the basis for credibility of the whole system

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Qualifications Frameworks and the Directive for Recognition of Professional Qualifications

- ☞ (Two plus One) major documents at High Level
 - ✓ The QF-EHEA -Qualifications Framework for the European Higher Education Area - An Agreement
 - Adopted in Bergen 2005, within the Bologna Process
 - ✓ The EQF-LLL - European Qualifications Framework for Lifelong Learning - A Recommendation
 - Adopted by 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 - A Law within the Union
 - National laws should have been passed in all EC Countries till the end of 2007

(Two plus One) 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

(Two plus One) 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

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(Two plus One) major documents

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

- ☞ Reaffirms previous Directive, accepting 7 professional areas with recognized specifications
- ☞ 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 available for consultation at http://ec.europa.eu/internal_market/qualifications/regprof/index.cfm

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(Two plus One) 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

(Two plus One) 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?

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

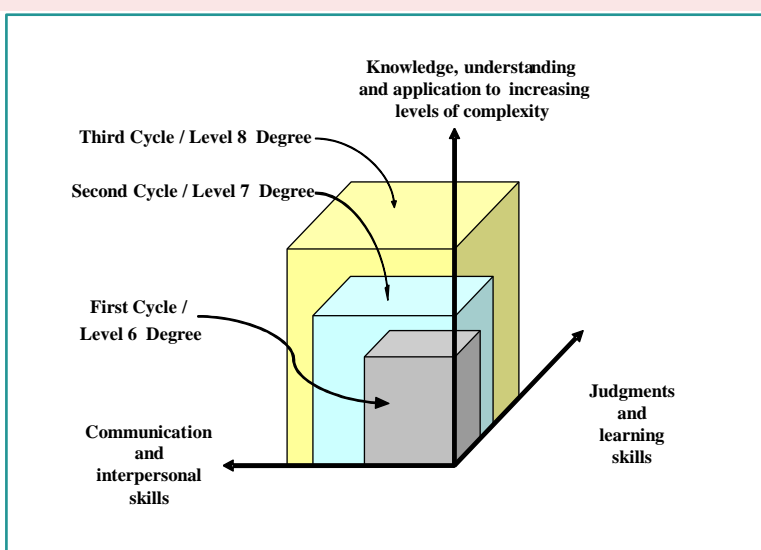
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Academic Degree Structures Understanding fundamental differences between levels of qualifications for professional purposes

- ☞ Programme Outcomes must be evaluated in relation with the level of intervention in the Professional 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 the differences in outcomes should be (with exceptions) 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 Routes for the different qualification levels

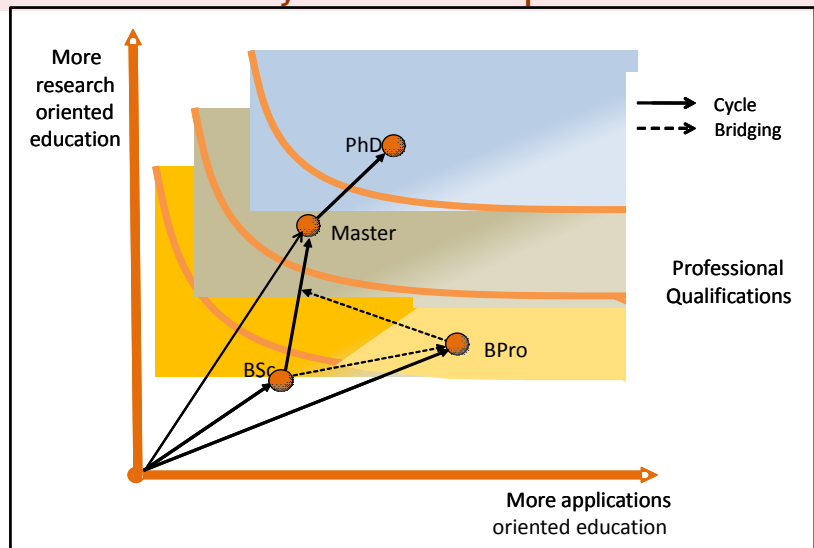


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Academic Degree Structures in Engineering Routes for the different qualification levels As entry routes for the profession



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Academic Degree Structures in Engineering

Prevailing concepts in the design of the Degree System

- ☞ **More flexible paths - MORE differentiation (competences) offered**
 - **Either more research oriented, or more innovation oriented, or with a higher entrepreneurial spirit, etc....**
 - **Bringing in the concept of “Communication Pipes” between different profiles of education - Bridging programs**
- ☞ **More attractive offer in order to bring into the system students with different backgrounds and interests**
- ☞ **Promotion of a true offer for lifelong learning through**
 - **Complementary modules of (advanced) specialization courses**
 - **Implementing the concept of ‘accumulated credits’ for recognition of studies**

To say what I am going to say...

- ① **Setting the stage**
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- ② **Qualifications Frameworks - Which... What... How....**
 - ② **QF complementary layers - Meta Frameworks**
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- ③ **Closing Notes**

The Recognised Relevance of Sectoral Frameworks (I)

✉ Excerpt of the Document “BFUG - Bologna Beyond 2010”,
February 2010

“... 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.”

The Recognised Relevance of Sectoral Frameworks (II)

Taken from the BFUG document - Bologna Beyond 2010
February, 2009

“Common reference points could also be developed for an entire sector, which might lead to the definition of sectoral descriptors and the establishment of sectoral qualifications frameworks...”

If sectoral descriptors were to be developed it must be done in such a way that they relate to the national and existing European frameworks”

The Recognised Relevance of Sectoral Frameworks (III)

Taken from the Leuven/Louvain-la-Neuve Communiqué
29 April 2009

“ ...

Curricular reform will thus be an ongoing process leading to high quality, flexible and more individually tailored education paths.

Academics, in close cooperation with student and employer representatives, will continue to develop learning outcomes and international reference points for a growing number of subject areas

...”

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Bringing Qualifications Frameworks into Practice

I - Sectoral or Subject Specific Frameworks

The case of the Engineering Area

Initiatives that came to life along the years

- ☞ TUNING methodology
 - ✓ E4 proposals
- ☞ TU3 proposals - Delft, Eindhoven e Twente
- ☞ CDIO - Conceive-Design-Implement-Operate
- ☞ ABET standards for professional quality assurance
- ☞ EUR-ACE standards for quality assurance
- ☞ European projects to identify core knowledge and competences at discipline level
- ☞ Initiatives leading to core curricula recommendations
 - ✓ European Working Parties on Education and joint initiatives at academic level

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Qualifications Frameworks at Sectoral Level Case Study - The EUR-ACE System

- ☞ Two European Projects that aimed at establishing and implementing an European System for Qualification of Engineering Education programmes
 - ✓ to ensure suitability of programme as entry route to the [engineering] profession
- ☞ 14 European Institutions, among them the Portuguese Institution of Engineers
 - ✓ FEANI, SEFI, CESAER, EUROCADRES, ENQHEEI, ASIIN, CTI, IEI, CoPI, UNIFI, OE, UAICR, RAEE, EC-UK
- ☞ Supported by the European Commission (DG EaC) within SOCRATES and TEMPUS programmes; Concluded in 2008

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The EUR-ACE System I - System Characterization

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

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The EUR-ACE System

II - Knowledge and Competence areas

- ☞ **Programme Outcomes that must be satisfied**
 - **21 items grouped in 6 areas of competences are defined**
 - ✓ Knowledge and Understanding
 - ✓ Engineering Analysis
 - ✓ Engineering Design
 - ✓ Investigations
 - ✓ Engineering Practice
 - ✓ Transferable (personal) Skills
 - **For each category, the EUR-ACE Framework Standards list the expected Programme Outcomes of First Cycle and Second Cycle Studies**

Qualifications Frameworks and Quality Assurance

I - Clustering of qualifications descriptors

QF-EHEA - EQF-LLL - EUR-ACE

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

Qualifications Frameworks and Quality Assurance - II - What is equal, what is different (I) QFs, the Directive and the EUR-ACE System

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Short Cycles Linked to or Within First Cycles	Level 5		Art. 11° c)

Qualifications Frameworks and Quality Assurance II - What is equal, what is different (II) EUR-ACE First Cycles / QF-EHEA -First Cycles / EQF-LLL- 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																		■		■		■

Qualifications Frameworks and Quality Assurance II - What is equal, what is different (III)

EUR-ACE Second Cycles / QF-EHEA -Second Cycles / EQF-LLL- Level 7

		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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Descriptors at Syllabus (contents) level

I - Recommendations of the WPE-EFCE (I)

- ☞ **WPE-EFCE - Working Party on Education - European Federation of Chemical Engineering**
 - ✓ Currently with 40 members, representing 26 Countries
 - ✓ Developed between 2003 and 2005 an exercise of identification of core curriculum for chemical engineering - contents and methodologies
 - ✓ See EFCE Site and Bologna Recommendations (2005) at
<http://www.efce.info/wpe.html>
http://www.efce.info/Bologna_Recommendation.html

Descriptors at Syllabus (contents) level

I - Recommendations of the WPE-EFCE (II)

- ☞ 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 II - The CHEMEPASS Project (2006-2009) (I)

- ☞ Financed by the European Commission within the Erasmus Mundus Programme - Action 4: “Enhancing Attractiveness”. Started: November 2006. E.U. grant for 3 years.
- ☞ Composed of 13 Higher Education Institutions of 9 European countries and 1 of South Africa:
CPE Lyon (France) (Coordinator), Institut Quimic de Sarrià (Spain), Universidade do Porto (Portugal), Politecnico di Torino (Italy), INPL-ENSIC Nancy (France), INPT-ENSIACET Toulouse (France), Technische Universiteit Delft (The Netherlands), University College Dublin (Ireland), Technische Universität München (Germany), UCTM Sofia (Bulgaria), Jagiellonian University (Poland), Lappeenranta University of Technology (Finland), Durban University of Technology (South Africa).

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Descriptors at Syllabus (contents) level II - The CHEMEPASS Project (2006-2009) (II)

- ☞ **Milestones**
 - ✓ Identification of relevant general and specific Learning Outcomes for Chemical Engineering Programmes
 - ✓ Identification of knowledge to be tested among Chemical Engineering core subjects
 - ✓ Development of a database with test questions

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A Case-Study of integration of frameworks The VDI-GVC Recommendation for Chemical and Processing Engineering (2008) (I)

- ☞ VDI-GVC approved qualifications frameworks 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

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A Case-Study of integration of frameworks The VDI-GVC Recommendations for Chemical and Processing Engineering (2008) (II)

- ☞ Recommendations are 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

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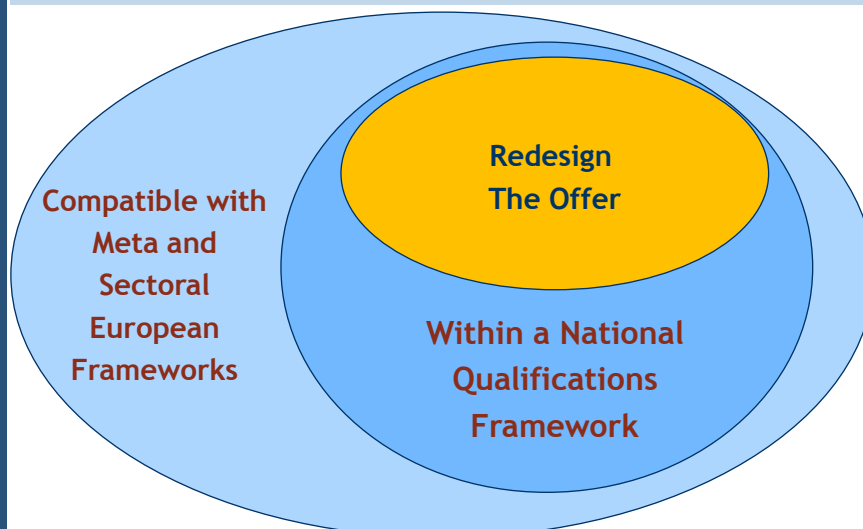
Qualifications Frameworks Quality Assurance, Recognition of Qualifications Mobility and Cooperation

- ☞ Frameworks at different levels are compatible or can easily articulate
- ☞ National Frameworks are the reference,
 - ✓ It is clear that they must be in substantial conformity with Frameworks at all levels developed within the Bologna Process or other transnational cooperation
- ☞ Quality Assurance procedures should
 - ✓ Include criteria that are in substantial conformity with accepted descriptors at meta, sectoral and syllabus level

Bringing Bologna into Practice (I)

- ☞ For some countries, the most difficult bit of the Bologna Reform
 - ✓ Defining NQF compatible with EQF
 - ✓ Characterizing the programmes through ECTS - Workload plus Outcomes
 - ✓ Re-doing of all modules within this new framework
 - ✓ Giving evidence that approved Learning Outcomes are achieved
- ☞ Or simply, bringing Bologna into practice...
- ☞ This requires full involvement of Academics

Bringing Bologna into Practice (II)



Mobility - Recognition of Qualifications - Cooperation Qualifications Frameworks

- ☞ Mobility is a distinctive need of Today's Global World
- ☞ Recognition of professional qualifications is a major task ahead...
- ☞ Mobility and Recognition require transparent and compatible Frameworks at different complementary layers
- ☞ Mobility and Recognition of Qualifications are not an illusion, a dream, an objective or a target...

They are a **MUST**...

**Required for European Development and for
Peace and Progress on Earth**