The European Higher Education Area: The future of engineering.
Content

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The Bologna Declaration:

- Treaty;
- Convention;
- Law;
- Political engagement.
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Objectives:

• Competitiveness  \textit{(attractiveness*)} of European Higher Education;
• Mobility;
• Employability;
• \textit{Lifelong Learning*};
• \textit{Social Dimension*}.

\* \textit{Prague Communiqué}
Instrumental objectives:

- Comparable degrees;
- Two cycles;
- Credits, such as ECTS;
- Mobility (Mobility Action Plan)*;
- Quality Assurance (Cooperation, best practices)*;
- European dimensions (Joint degrees)*;
- Information*;
- Recognition of qualifications*;
- Common framework of qualifications*.

* Prague Communiqué
Two statements:

Higher Education is a public good;

Students are full members of the H.E. community.
Some sources of information:

• Berlin Ministerial Conference:  
  www.bologna-berlin2003.de;

• EUA:  
  www.unige.ch/eua/;

• ESIB:  
  www.esib.org;

• European Commission:  
  http://europa.eu.int/comm/education/index_en.html;

• Tuning:  
  www.relint.deusto.es.
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1. Degree structure

- Two cycles:
  - Undergraduate: 180 a 240 ECTS credits;
  - Post-graduate: Master e Doctorate;
- Long programmes in some subject areas (Master?);
- Diversity of orientations at both the 1st cycle and Masters (professional and/or academic);
- Joint programmes/degrees between institutions of different countries.
2. Quality Assurance and Accreditation

- National quality assurance systems;
- Assessment/Accreditation of the quality assurance systems at European level;
- Certification of quality or European accreditation systems.
3. Learning outcomes

- Knowledge, competences and skills;
- Definition of the programmes by learning outcomes;
- Agreement, at European level, on the core of learning outcomes, by subject area/programme;
- Incorporation of learning outcomes aiming at European employability.
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4. Recognition of qualifications

- European Credit System (accumulation and transfer);
- Diploma Supplement;
- Recognition based on the core learning outcomes and overall level, not on formal equivalence;
- Applying the Lisboa Recognition Convention.
5. Lifelong Learning

- Generalisation of accreditation of prior and experiential learning;
- New publics.
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6. Mobility of students, teachers, researchers and administrative staff

- Overcoming the obstacles (Action Plan);
- Active policies to promote mobility;
- Financing mobility: community and national levels;
- Better organised information;
- Institutions more “friendly”.

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7. Institutional cooperation

- Agreements on the core learning outcomes;
- Joint degrees;
- Exchange of experiences and best practices;
- Cooperation in the development of distance learning materials (in several languages)?
Two paradigms of the European Higher Education Area

- Learner centred education;
- Organised diversity.
The actors

 Governments

 Higher Education Institutions

 The European Commission

 Students

 Council of Europe

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The actors’ agendas
(other than Bologna Process objectives)

Governments
- Internal reforms
- Shorter programmes, less costs

Students
- More funding, better quality programmes and less personal costs

EU Commission
- Reinforced cooperation, more power
The actors’ agendas
(other than Bologna Process objectives)

Council of Europe
• Apply own contribution (e.g. Lisbon Convention)

Higher Education Institutions
• Greater autonomy
• More funding (or at least not less)

What strategies for HEI?
The agendas outside the agenda

Funding
- “The role of the Universities in the Europe of knowledge”
- Public vs. private funding

Reforms
- The Bologna Process as a justification for reforms
- The Lisbon strategy vs. Bologna Process
- Erasmus World
The future of engineering in the EHEA

Two typical professional levels

? Two typical educational programmes

• Chartered engineer (CEng) ? 5 years
• Incorporated Engineer (IEng) ? 3 years

With exceptions?

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Different educational routes (Ba/Ma)

- **Ba**
  - 1st cycle
  - 3/4 years
  - Basic Eng.

- **Ma**
  - 1/2 y
  - Sci.

- Profession

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Different educational routes (Ma/Doc)

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Annex A: Credit System

- Credit system: ECTS

- 1 academic year full time = 60 credit units
- 1 credit unit = 25 to 30 hours of work
- Workload = contact hours, individual study, exams, projects, group work, ...
- Credit units = measure = level descriptor
Credit System (cont.)

- Learning coherence is the responsibility of the higher education institution awarding the degree

- Transfer of credits among institutions:
  - Level descriptors
  - Learning outcomes
  - Quality assurance
Credit System (cont.)

Programme and subject objectives

Estimate of workload of each subject by the academic staff

Total workload (year/sem.)

Division of the 60 / 30 credits by the subjects

Experience

Programme coordination

Assessment of the workload by the students

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Annex B: Learning outcomes and curriculum organisation

- Curriculum organisation = process
- Learning outcomes = product
- Important ? learning outcomes
- Curriculum organisation ? means to an end
Learning outcomes and curriculum organisation

- Learning outcomes
- Knowledge
- Competences
- Skills

Learning outcomes \rightarrow Programme and curriculum organisation