

## THE BOLOGNA PROCESS

### Evidence from the Royal Society of Chemistry to the Education and Skills Committee

The Royal Society of Chemistry is the largest organisation in Europe for advancing the chemical sciences. Supported by a network of over 43,000 members worldwide and an internationally acclaimed publishing business, our activities span education and training, conferences and science policy, and the promotion of the chemical sciences to the public.

The main points the RSC wishes to make are:

1. Since the Bologna Process was launched, there have been major reforms of higher education systems across continental Europe. In the UK, a lack of leadership by government (and by universities) has prevented intelligent debate of the issues with a consequent failure to reap the benefits of the reform process.
2. The UK is increasing participation in higher education. If it wishes both to remain internationally competitive and retain its relatively low non-completion rates, there needs to be a greater differentiation of purpose between phases (cycles) of higher education as indicated in our response to the Committee's more broad ranging inquiry. The Bologna Process permits
  - a first cycle for general higher education and upskilling
  - a second cycle that fits graduates for professional practice in a given field
  - a third cycle that provides research training and produces future research leaders.
3. It is imperative that the UK has a second cycle of higher education that is seen to be at the leading edge of output standards so that UK higher education, and its graduates, can
  - compete within Europe, and
  - compete beyond Europe
4. The main route to professional practice in the UK in chemistry (as is the case in the other physical sciences and in engineering) is the integrated masters, MSci/MChem. Science is international; there is a global market for higher education and science based employment. If the UK is not seen to be leading within Europe, it cannot hope to compete globally. In relation to MChem/MSci there are two strategies available.

Either

- a) deferred integrated masters as fully meeting the requirements of the second cycle; or
- b) enhance programmes so that second cycle requirements are demonstrably met.

We do not believe that (a) is tenable in the long term.

5. Our concerns are based upon
  - major employers increasingly recruiting at masters level from continental universities and taking continental masters students on work placement
  - an initiative of major pharmaceutical companies with a Research Council to jointly fund a four year PhD with an MChem/MSci entry that has a substantial educational component prior to the research phase
  - findings of an Anglo-Danish comparative study of chemistry higher education that found that, in the UK MChem/MSci, there is insufficient opportunity to achieve fully the outcomes required at masters level, particular in respect of project work
  - the requirements for the award of the Eurobachelor and Euromaster labels in chemistry for which the RSC is the UK accrediting body. Whereas UK institutions can meet the requirements for Eurobachelor, they are unlikely to be able to do so for Euromaster.
6. In addition to a lack of leadership, the other major barrier to reform is the financial model for funding teaching in universities which further discourages institutions considering change.

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### Detailed comments from the Royal Society of Chemistry

1. *Implications of the Bologna process for the UK Higher Education sector: advantages and disadvantages.*

The advantages are as set out in our main comments – a greater differentiation and clarity of purpose of the different phases of higher education, and the opportunities for the UK to be seen to be at the leading edge of higher education in Europe. The disadvantages are in the transition process of reform, rather than in the final state.

2. *The agenda for discussion at the 2007 meeting in London – clarifying the UK position.*

The most important consideration is the attitude of the UK Government – it needs to be seen to be leading debate at home and seeking to reap the benefits of the Bologna Process if it is to be able to provide leadership across Europe.

3. *The implications of a three-phase structure of higher education awards for to [error in original text on web] one-year Masters and short undergraduate courses (HNCs, HNDs, and Foundation Degrees).*

No mention is made of integrated masters in these terms of reference. The final year of such programmes, and one-year stand alone masters, provides insufficient opportunity fully to meet the requirements of the second cycle. UK graduates can therefore be at a competitive disadvantage in comparison with their continental colleagues.

Short undergraduate courses are extremely valuable in their own right and their intended purposes should not be influenced by the requirements of the first cycle. For students who wish to continue to the level of the first cycle there should be clear routes and full credit given for their prior achievements.

4. Awareness and engagement in the Bologna process within HEIs.

*Awareness is increasing and, although actual engagement is low, there is a significant number of academic chemists who work to do so, HEFCE has funded an RSC led project to work with industry to produce models for second cycle programmes in chemistry. The project has enthusiastic support from employers and a large number of chemistry departments.*

5. *Opportunities to enhance the mobility of students from the UK.*

Adoption of the three cycle system enhances opportunity.

6. The possible implementation of a European Credit Transfer System (ECTS) and a focus on learning outcomes and competencies.

There is a tension within a credit system that has as main features input measures such as hours of student effort and output measures such as learning and competencies. Whilst the emphasis should rightly be on the latter, the former cannot be entirely discounted. Students require tuition,

guidance and time to study and learn. We should not be surprised at scepticism that UK students can fully achieve given outcomes in very significantly less time than is common elsewhere.

7. *Quality Assurance systems in HE (teaching and research): the compatibility of UK proposals and Bologna.*

This is an area where the UK can justifiably claim to lead. The combination of institutional quality assurance, guided by QAA and orthogonal subject accreditation largely carried out by professional bodies is a good model. RSC enjoys good working relations with the QAA.

8. *Degree classification reform in light of Bologna.*

The degree classification used in the UK, which now essentially has three operational levels, has outlined its usefulness. A transcript based approach is more appropriate.

9. *The broader impact of Bologna across Europe: a more standardised Europe and the consequences for the UK's position in the global market for HE (Bologna and the second phase of the Prime Ministers Initiative for International Education (PMI 2)).*

Elsewhere in Europe, the terms bachelor, master, and doctor are becoming more common. If the UK HE system, and its graduates, are to compete within Europe and more widely it must be seen to be at the leading edge of output standards. This means embracing the benefits of the Bologna Process.

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