

The EPC – Update for PHEE

10th January 2007

Tony Unsworth FREng



President,
Engineering Professors' Council,
and Professor of Engineering
Durham University,

Engineering Professors' Council

Promoting excellence in engineering higher education

- To make the excellence in higher education more widely known
- To enable engineering higher education to excel
- To secure adequate resources for higher education
- Represent our 1600+ members

What do we do?

- Annual Spring Congress (rotates around our membership)
 - Formal programme of speeches and presentations from politicians, government officers, engineering leaders, research and teaching funding Councils, European representatives, own members, etc.
- Focus meeting (London, Autumn)-23rd November 2006
 - Selective topics to help EPC formulate policy
- Bologna related activities
 - Attendance by representatives at main European meetings
- Engineering Ethics related activities
- Mathematics related activities
 - Working with others to extend school mathematics to prepare students for the higher level of performance required in our engineering courses
- Work on shared projects with others (QAA, EC^{uk}, ETB, RAEng)
- Hold conversations with politicians and Government Ministers with a shared interest in engineering higher education

What we have done -update

- Responded to all publications, discussion documents and statements relevant to our mission (cont.....)
 - Asked UUK Chief Executive to write to the UK Ambassador in Greece about the Greek Government decision to restrict recognition of UK higher degrees to departments of RAE grade 4 and above. This she did and we have gained a deferment.
 - Sent evidence to the Education and Skills Select Committee Review of RAE and Bologna
 - Sent submission to RCUK review of Peer Review Process for RCUK grants.



Our work on Output standards has now been incorporated into the QAA benchmarks.

Other Activities

- We met with the Royal Academy of Engineering's Standing Committee for Education and Training and since then **Professor Bill Milne and I have been made members of SCET.**
- We had an excellent meeting with the larger Professional Institutions (including IET) to discuss common issues. This is to be a regular event.
- Regular meetings with ETB and EC^{uk}
 - Doing a joint costing exercise for educating engineers
- **Involved with SEMTA on the Vocational Diploma in Engineering (AU, FJM, MFM, MA-T)**

Sectoral Groups

- Mechanical and Manufacturing Engineering (PHOMME)
- Electrical and Electronic Engineering (PHEE)
- **Aeronautical Engineering (AAU)**
- Civil Engineering (ACED)
- Chemical Engineering
- Computing



Meetings with Politicians and Civil Servants (update)

- Dr Kim Howells, then Minister for HE. Prepared several briefing notes for him on Engineering Graduate Salaries, Status of Engineers and provision of HND/ foundation courses.
- Stephen O'Brien then Shadow Minister for Higher Education (Conservative). Graduate employment; maths and physics standards in schools, Bologna and its effect on international recruitment. Asked for briefing notes

Both now changed roles



Meetings with politicians and civil servants cont....

- Barry Sheerman, Chairman, Education and Skills Select Committee
- Bill Rammell, Minister for Higher Education
- Boris Johnson, Shadow Minister for Higher Education.
- Phil Willis, Chairman Science and Technology Select Committee
- Jacqui Smith, then Minister for Schools.
- DTI – 3 members of Lord Sainbury's Team
- Series of meetings with French politicians and civil servants.
- Ian Taylor, Chairman, Conservative "Science, Technology, Engineering and Maths Task Force.
- Professor Eastwood, CEO HEFCE (this afternoon)

Barry Sheerman – Education and Skills

- MP for Huddersfield and very supportive of Engineering in Universities.
- Bologna
 - Shared our concern - “government was sleepwalking into the unknown”
 - He said he would include it as an area for the committee to hold an enquiry – [this has now happened](#)
- He seemed genuinely surprised that we thought that the RAE was downgrading teaching
 - Thought the graduate satisfaction survey would redress the balance
 - He couldn't have an enquiry into the RAE but he could organise an evidence gathering from VCs and HEFCE- [now happened](#)

Barry Sheerman

- Recruitment to engineering courses
 - Welcomed the London Project and sought further information from us.
- On pay and retention of university staff he was supportive.

Bill Rammell (1)

18th January 2006

- He apologised for Ruth Kelly.
- We stressed the need for more qualified engineers in UK and received a sympathetic response.
- The importance of the Sector Skills Councils and Regional Development Agencies was stressed to us since they seemed to be having more influence over HE funding.
- On improved standards in school maths, physics and chemistry; he pointed to the Government's record on extra funding for science teachers and assured us that the number of science graduates (physical as well as biological) in training for teaching had increased as had the number with 2.1 and better.

Bill Rammell (2)

- We raised the Comprehensive spending review and he replied that we would do well to come out of it with the present levels of funding indexed up (turned out to be true).
- He stressed that by sticking with A levels they were guarding standards.
- Bologna produced unanimity from the Minister and his civil servants. Our MEng was entirely compatible with Bologna and had parity with the 3+2 degrees in Europe. We agreed that in terms of output standards we were compatible but were sceptical about whether this would be accepted as an argument. Events have since proved us to be right.
- We raised the RAE and its effects on recruitment and planning, funding for teaching university engineers and salaries for university staff as promised when the top-up fees were agreed. He agreed to take these up with HEFCE if we supplied him with the data which we did.

Boris Johnson, Shadow Minister, 28th February 2006

- Bologna
 - he was very new to the job and at this time knew little about Bologna but was genuinely keen to learn
- Infrastructure problems caused by shortage of good graduate engineers (how will government meet its responsibilities for Olympics, Energy etc)
 - He was particularly interested in this and wrote an article on it in the Daily Telegraph a few days after our meeting “Bring back the Boffins”
- Status of engineers
- Salary structure and retention of staff in university departments
 - He believed that government had not delivered on their clear statement on academic salaries at the time when “top up fees” were introduced - though he conceded that they had put a lot of money into science
- The nature of a University (balance between teaching and research)

Boris Johnson

- Numbers of students coming into engineering -should this simply be left to market forces?
- Wanted to promote careers in Engineering and asked us for hard data to use. We encouraged him in this.
- Concerned at the perceived fall in standards, and numbers of students taking, maths, physics and chemistry in schools
- He contacted us after the meeting for further information for his speeches and his newspaper articles, much of which he has used.

Phil Willis-Science and Technology Select Committee (16th March)

Lib-Dem MP Harrogate, Former head teacher

- Agreed with EPC that there was a need for more professional engineers to meet the government's ambitious plans
- On funding he thought we had done well in science and could expect no more
- Bologna, he felt, was a problem that government was being too complacent about.
- As a former head teacher he recognised our concerns about Maths and Physics
- On UCAS tariffs his committee were keen to consider giving extra points to STEM subjects.

Phil Willis cont.....

- He thought that by 2008 there could be a lot of pressure for 2 year degrees with longer teaching year. He did see the problems for science and engineering posed by this.
- He welcomed the new science syllabus for schools and felt it would increase student enthusiasm for science
- On the RAE he was, like others, surprised that we felt it had a distorting influence on university priorities- Abolition didn't seem an option.
- He felt that Engineering needed a “vision” and a champion- rather like Lord Winston was doing for medical science.

Jacqui Smith-Schools Minister (22nd March 2006)

- She was “bursting” to give us the news from the house that day about extra investment into science teaching in schools.
- She agreed with our worries about the “Engineering Diploma” as she had similar worries about who would teach the courses and what was relevant to be taught. She was relying heavily on the new science learning centres to help to prepare teachers.
- She liked the idea of retired engineers (especially academics) giving their expertise to help excite students.
- She was also pleased that EPC were actively involved in the planning process for the Engineering Diploma.

Now moved on

Department of Trade and Industry

Lord Sainsbury's Office arranged for us to meet with:-

Jane Hall, Deputy Director, Management, Leadership and Skills Unit

Simon Edmonds, Director Business Relations, Enterprise and Business Group

Dr Anthony Whitehead Director, Science and Society

Department of Trade and Industry (1)

- Concerned about criticism of A level standards in maths, chemistry and physics and too few students taking the subjects anyway. They wished to see more students taking Engineering at University.
- They talked at length about the **Leitch Report** on the UK skills needed by 2020 and the urgent need for more science graduates and general up-skilling of the workforce - need more and better qualified science teachers.
- Proper funding of undergraduate degrees in engineering was discussed and our link with ETB who are funding our “costing” study.
- On Bologna we raised the importance to recruitment of overseas students and mobility of our graduates with which they agreed.
- Engineering Diploma - following representations, the science and maths content at level 3 would satisfy university entrance. However since this meeting the maths content has been reduced.
- Who would teach it ? what about funding? Industrial support?

The background features large, stylized, light blue letters 'E', 'P', and 'C' arranged in a way that they appear to be part of a continuous, flowing line. The 'E' is on the left, the 'P' is on the right, and the 'C' is at the bottom. The letters are semi-transparent and have a slight 3D effect.

Meeting with HEFCE – input on funding levels for Engineering

Finance –unit of teaching resource

- Relative funding levels
 - Medicine, Dentistry and Veterinary 4
 - Science and Engineering 1.7
 - Subjects with fieldwork/lab element 1.3
 - Other subjects 1
- Engineering was previously given a factor of 2

Units of teaching resource- total funding remained constant

	Past	Present	Difference
Med.	4	4	0
Eng	2	1.7	-5%
Lab	1.5	1.3	-4.5%
Other	1	1	+14.1%

Student admissions 2005/6

General Engineering	+15.2%
Civil Engineering	+4.1%
Mechanical Engineering	+5.2%
Aerospace Engineering	+8.5%
Electronic and Electrical	-5.6%
Production and Manu.	-4.8%
Chemical Engineering	+12.8%

Student Admissions 2006-7

released on the 18th October 2006

Subject	numbers	% change
Electrical and Electronic	4590	-13.3
Mechanical	4395	-4.3
Civil	3408	+0.6
General Engineering	2806	-0.3
Aeronautical	1700	-2.4
Chemical Process and Energy	1304	+8.8
Production and Manufacture	821	-21.2

Major issues for the future

- International relationships and benchmarking
- Real costs of Educating Engineers
- Funding levels for engineering courses (VCs see these as loss makers as opposed to Arts subjects)
- Input standards (Maths, Chemistry and Physics)
- Output standards
- Proper evaluation of both

Now what!!

- Continue our campaign to get Engineering recognised as an exciting, worthwhile, important and rewarding profession for students to enter whilst striving for proper funding for high quality courses.