

## **New challenges, new chances: next steps in implementing the Further Education reform programme**

### **BIS Consultation**

Submission from the Royal Academy of Engineering

18th October 2011

### **General points**

The Government's growth strategy places skills at the centre of the economic recovery and emphasises the need for a rebalanced economy. A rebalanced economy which is environmentally sound requires excellent engineering skills in sufficient numbers.

**Therefore we welcome the prominence given to economic recovery given in *New challenges, new chances*.**

As we stated in our submission to the recent HE White paper, accredited Bachelors courses in all branches of engineering including computer science, the integrated engineering Masters degree (MEng) and specialist technical MSc courses offered in UK universities set global standards for quality and provide employers with the *professional engineering* skills needed for innovative growth in a global economy. They are strategically important to the UK economy.

The FE and Skills sector delivers complementary science, technology, engineering and mathematics (STEM) qualifications at low, intermediate and higher NQF levels. Some of these, particularly those that form technical certificates in advanced and higher STEM apprenticeship frameworks and those that provide progression to STEM higher education also provide employers with the *professional technician* skills needed for innovative growth in a global economy. **We urge Government to prioritise advanced and higher STEM qualifications in decisions on funding provision, loans and student number controls on the grounds of their importance to economic growth.**

### **Specific points**

We note the intention to issue a new policy framework for the FE landscape replacing *Further Education Colleges – Models for Success*. When suggesting new business models for Colleges and training providers we urge BIS to take particular care to ensure that STEM subjects are given high priority. STEM subjects provide the basis for success in productive industries and are under-pinning efforts to create sustainable economic growth. **BIS should consult with the Academy on the matter of STEM in the FE and Skills Sector when preparing the new policy framework.** The Academy leads the FE STEM Data Project which has identified the nature and scale of STEM provision in the sector. We are at the centre of curriculum developments in the new University Technical Colleges which provide a useful model for curriculum co-development between education providers, employers and Higher Education. **We also note the opportunity for new business models to have a simplifying effect on the landscape – drawing together work currently delivered separately by FE Colleges, University Technical Colleges, National Skills Academies, the National Apprenticeship Service and so on.** The prize for simplification is more effective employer engagement, gained because the input from employers is made in a focused way.

We note that government-backed loans will be introduced from 2013/14 and will apply to provision at Level 3 / 4 for those aged 24 and over, including Access to HE courses as well as Advanced and Higher Apprenticeships. The Technician Council is an important stakeholder in the introduction of these loans as, being for Level 3 / 4 courses and programmes, they directly affect the up-skilling of professional technicians. **BIS should consult with the Academy and**

**the Technician Council when preparing the communications plan for the introduction of loans to ensure that the STEM qualifications known to have significant value in the labour market<sup>1</sup> are given appropriate weight** (noting that not all STEM qualifications have the same labour market value – those in engineering and IT offer the highest wage premia for example).

We welcome the statement – “*The FE and skills sector needs to harness the expertise of business to bring currency and knowledge of the practical application of skills in the work place into classrooms and to encourage learners to register with professional bodies on completion of their courses and develop their skills through their working lives. A challenge for the sector will therefore be to build more effective links with professional, craft and learned bodies, across the industrial sectors served*”. **This reinforces the mission of the Technician Council.**

We note that the Learning and Skills Improvement Service (LSIS) will be publishing its Business Plan for 2011/12. We welcome the news that there will be lead national subject experts appointed for STEM subjects. LSIS should heed their advice on the subject-specific CPD required by STEM teachers, lecturers and tutors.

We confirm that the Technician Council will publish a map of apprentice frameworks that lead rapidly to Technician Registration and that this will go alongside a more general appraisal of pathways to technician status. This is likely to be published in early 2012.

The FE Data Project is mentioned in *New challenges, new chances*. The project has produced its second report which is ready for dissemination<sup>2</sup>. This extends what is currently known about the scale and nature of STEM provision and provides a greater understanding of progression in STEM subjects. The accompanying analysis of employment outcomes for individuals with STEM qualifications and those working in SET occupations (Greenwood et al, 2011) demonstrates the labour market value of STEM qualifications. There are many STEM qualifications and not all enjoy the respect of employers. This is a theme extended in a further analysis of the many STEM qualifications available<sup>3</sup>.

We note that BIS and DfE will discuss with the Institute for Learning and LSIS a proposal to establish an independent commission on vocational pedagogy. **This is an important development and we urge government to ensure that it is seen to be truly independent. The Academy should be represented on this Commission. We recommend that the Academy is consulted on who should chair this commission and on arrangements for its governance.** For example, the remit of the Commission should include issues around the supply and ongoing training of specialist teachers, lecturers and tutors. The Academy has been working to identify both the current vocational STEM teaching workforce as well as identifying the development needs of STEM teachers and lecturers.

The deadline for responses to the Higher Education White Paper has now passed. However, in the context of *New Challenges, New Chances* and the overall FE reform agenda we repeat the points made in our submission to the HE White paper:

- **The modern, experience-led engineering higher education required by industry to drive economic growth is currently underfunded** despite the additional support received through the HEFCE higher-cost provision and SIVS mechanisms<sup>4</sup>. **The proposals made in the HE White Paper fail to address this point, do not offer a**

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<sup>1</sup> The labour market value of STEM qualifications and occupations, C. Greenwood, M. Harrison, A Vignoles, Institute of Education / Royal Academy of Engineering, July 2011

<sup>2</sup> FE STEM Data Project – July 2011 Report, The Royal Academy of Engineering, July 2011

<sup>3</sup> *Respected*: technical qualifications selected for use in University Technical Colleges, Matthew Harrison, RAEng / Baker Dearing Educational Trust / Edge, 2011

<sup>4</sup> Engineering Graduates for Industry, the Royal Academy of Engineering, 2010

**stable and sustainable future for engineering courses and hence present risk to economic growth.**

- Allowing new providers to compete for the contestable student numbers will not alleviate the pressure noted for strategically important STEM subjects. The FE STEM Data Project has identified the paucity of Level 4+ STEM provision in the FE & Skills sector. Therefore the FE & Skills sector does not have the capacity or resources to compete for STEM students in significant numbers.

We note that FE & Skills sector policy proposals are not predicated on increasing the total amount of data collected where there is no demonstrable benefit, but built around the principles of making the most efficient use of data collected across the sector and promoting consistency in the use of that data in order to optimise the transparency of information and to minimise burdens. We welcome the statement

*'We want to improve the efficiency of how we collect data and how we use it by better sharing of readily available data, including that held by Government. We only want to collect data that we can demonstrate is necessary to support the effective delivery and development of the sector – at national and local level. We also wish to encourage greater data sharing across the sector as this will lead to further reductions in data burden for learners, employers, awarding organisations, colleges.'*

The FE STEM Data project is a leading example of how government-sponsored data is providing employers, STEM professional bodies and the sector itself with detailed insight into a section of provision that is vital to economic growth. **We urge BIS to continue with its support of the FE STEM Data Project.** In addition, we see significant promise in the trials of linked databases (National Pupil Database, Individualised Learner Record, HMRC database, National Benefits Database) reported by BIS in recent months. These are key to quantifying the labour market outcomes of qualifications –**and should be applied to STEM qualifications and occupations.**

## **About us**

Founded in 1976, the Royal Academy of Engineering (the Academy) promotes the engineering and technological welfare of the country. Our fellowship - comprising the UK's most eminent engineers - provides the leadership and expertise for our activities, which focus on the relationships between engineering, technology, and the quality of life. As a national academy, we provide independent and impartial advice to government; work to secure the next generation of engineers; and provide a voice for the UK's engineering community.

The Academy hosts the **Technician Council** which was formed in July 2010. Its primary focus is to enhance recognition of the role professional technicians play and emphasise the value they bring to society and contribute to industry, especially manufacturing. Employers and employees alike are being involved in order to help inform the development of its professional recognition programme.

The Council's work, funded by the Department for Business, Innovation and Skills and by the Gatsby Foundation, supports the wide range of individual institutions and bodies in the creation of a technician level recognition. The Council is chaired by Steve Holliday FREng, CEO of National Grid.