

The Science Council

1. The Science Council is a membership organisation representing 40 learned societies and professional bodies¹ drawn from across science and its applications. Our mission is to support the professional development of scientists through setting common high standards and codes of conduct across the disciplines and sectors of science and at all levels in the science workforce.
2. The Science Council's principal area of work is to advance the professional practice of science across the breadth of the science workforce, including technical roles in science. A key aspect of this is professional registration and having introduced Chartered Scientist (CSci) in 2004, the Science Council has added Chartered Science Teacher (CSciTeach), Registered Scientist (RSci) and Registered Science Technician (RSciTech).² RSci and RSciTech aim to raise the profile, aspirations and retention of scientists at graduate and technician level.

Raising the status and professional recognition of the teaching workforce

3. **The Science Council supports the government's aim to improve professionalism and standards of teaching in higher education institutions. Greater support from Government, working in partnership with the Science Council, for professional registration and degree accreditation by professional bodies, will drive up standards in HE teaching so that HEIs produce the type of science graduates that are in demand by employers.**
4. The hallmark of a good teacher should include their commitment to continuing professional development (CPD) activities; professional registration is one option to demonstrate this. Professional registration proves an individual's competence, ability, integrity, and demonstrates their commitment to keeping their skills and knowledge up to date through annual CPD and should be a key part of raising the status and recognition of teaching in HE.
5. Professional registration provides individuals with career progression opportunities, as the knowledge and competence they must demonstrate to gain registration will give them wider recognition outside of their specific discipline or sector. The ability for HE teaching staff to move between and across different employers and industry sectors can provide them with a wider perspective and understanding of the skills and knowledge that employers demand of science graduates. This can also provide teaching staff with knowledge about the range of science careers available, which they can then communicate to students.

Recognising and supporting science technicians in the HE workforce

6. **Science technicians in higher education have a significant impact on students' learning experience. To ensure that they continue to provide an excellent teaching experience, higher education institutions, in partnership with the Science Council, should encourage the professional registration of their science technician workforce.**

¹<http://www.sciencecouncil.org/our-members>

²<http://www.sciencecouncil.org/professional>

7. There are over 33,000 technicians working in English universities.³ The average age of an HE technician is 50⁴, meaning that large numbers of highly-skilled technicians will be retiring over the next decade or two, taking their knowledge and experience with them. To adequately replace and retain technicians, their role in HE must be an attractive career choice with demonstrable career progression built in, which the Science Council's professional registers provide.
8. Technicians are essential to ensuring the smooth running and effective operation of teaching activities and significantly contribute to students' learning gains and employability. HEFCE has concluded that "*the technician role is increasingly growing to include the demonstration of concepts and theory, and is ultimately moving towards an active teaching role, away from 'pure technicians' roles*"⁵
9. They make significant contributions to student teaching through carrying out experiments, analysing data, supervising students, assisting in teaching laboratories, designing new pieces of equipment, managing staff, taking responsibility for apparatus and managing health and safety requirements for their area of work.
10. Their role in HE teaching will become increasingly important in science as employers continue to look for graduates with high-quality practical skills.⁶ They will require appropriate training and career development opportunities to ensure that they maintain up-to-date skills and knowledge to provide better support to teachers. The teachers can, as a result, be freed from the burden of non-teaching work, and focus more on improving course quality, student contact hours and overall student attainment.

Science Council supporting higher education staff professional development

11. **The Science Council is working with HEIs that are committed to the professional development of their science teaching and technical staff through its Employer Champion Scheme. Government should encourage all HEIs to become Science Council Employer Champions to demonstrate their commitment to supporting their staff's continuing professional development. Requirement to register as an Employer Champion could be included as part of the TEF.** Currently four universities have become Science Council Employer Champions.⁷ The scheme is without charge.
12. The Science Council's CPD Approved Employer scheme recognises commitment to good practice by an employer in the learning and development of their scientists and technicians and the application of science for public benefit. Quality Assurance Agency (QAA) guidance states that HEIs implementation of accredited CPD schemes "*is a significant indicator of the importance that institutions place on enhancing the skills of all staff who support learning, and on the quality of the learning experiences offered to their students*". Government could also encourage HEIs to sign up to our scheme. This Science Council scheme is also without charge.

Supporting students and graduate employability

13. **The Science Council is committed to working with its members and partner organisations to champion a coherent approach to accreditation across science.** The Science Council has been a member of the advisory group for the

³ <http://www.hefce.ac.uk/analysis/staff/job/>

⁴ <http://www.gatsby.org.uk/uploads/education/reports/pdf/he-techn-final-report.pdf>

⁵ http://www.hefce.ac.uk/media/hefce/content/pubs/2010/rd0310/rd03_10.pdf

⁶ <http://news.cbi.org.uk/reports/education-and-skills-survey-2015/education-and-skills-survey-2015/>

⁷ <http://www.sciencecouncil.org/employers>

Wakeham Review of STEM Graduate Employability. The Review has looked at the provision of STEM degree courses and how their associated accreditation arrangements support graduate employability. We believe there is a strong case for degree accreditation to play a key role in raising the quality of teaching in HE. By ensuring closer engagement with industry and the profession, accreditation can provide an important quality stamp that would confirm teaching in HE is high-quality and produces graduates with the knowledge, skills and resilience demanded by employers.

14. The Science Council works with both universities and employers to endorse quality year-long industry placements for students. Students who complete their year in industry and Science Council assessment can gain nationally recognised RSci status for the knowledge and skills they have gained, setting them on a journey to achieving CSci. For employers, aligning the RSci standards to placements has provided structure to their programmes, improved their quality and an added competitive edge enabling them to attract the best students
15. Universities actively encouraging students to take on placements that enable them to achieve RSci will enhance their students' employability prospects, raise student satisfaction levels and reinforce their support for excellence in teaching.

Measuring Teaching Excellence

16. It is not clear how teaching excellence will be measured in science. Teaching in science subjects takes place in a variety of settings, for example, in the classroom, in laboratories, and through field work, and is intended to expose students to different ways of learning. It would be highly impractical to use the same measures for teaching excellence in science subjects across multiple and vastly different learning environments. Equally using a one-size-fits-all measure will risk rendering the outputs meaningless.
17. Measures to assess teaching excellence should be longitudinal and outcome-based, involving input from graduates and employers. Student questionnaires should be used at least six months after graduation, asking about graduates' own learning outcomes and the ability of their teaching staff to support their learning. This should be repeated after at least five years to develop a clearer picture of graduates' progression across time. Employers should be asked to rate the skills and knowledge of their university recruits and those that did not go to university. This will enable comparisons between graduates from different universities and between HE graduates and those that pursued alternative education and training pathways.

Incentivising and enabling improvement

18. The conundrum is how to use financial incentives to reward and encourage excellence without impoverishing those that have room for improvement such that they cannot afford the development needed to improve.
19. The proposal is to allow those Institutions which demonstrate teaching excellence to raise their fees. It is important to note that it will be more useful for prospective students to be able to compare the relative teaching quality of HEIs at course or faculty level than at whole institution level, and there may be unintended consequences for particular courses where fee caps apply across the whole institution.
20. An alternative is to cap student recruitment numbers for universities that do not reach a particular threshold, determined by the outcomes of the longitudinal survey. Lower

numbers may help the HEI find the time to work on teaching excellence. It reduces the number of students receiving a lower quality experience and it has financial consequence for the university.

21. The Science Council supports the government's intention to create a body that will measure and monitor teaching excellence and champion the needs of all students. We believe it should take into account student stated desires and feedback on experiences and outcomes. To ensure that students' interests continue to be the focus of the higher education sector, representatives from the National Union of Students could be full members of the new body's governance board or the Unions could be formed into an advisory Board for the new body.