

Response to call for evidence: Salary threshold and points-based system

Education for Engineering (E4E), Royal Academy of Engineering

Education for Engineering (E4E) is the body through which the engineering profession offers coordinated advice on education and skills policy to UK Government and the devolved Assemblies. It deals with all aspects of learning that underpin engineering. It is hosted by The Royal Academy of Engineering with membership drawn from the professional engineering community including all 35 Professional Engineering Institutions, the Engineering Council, EngineeringUK and the Engineering Professors' Council.

Engineering is at the core of our modern society, underpinning every sector from communication and entertainment to finance and healthcare, as well as its more visible applications in construction, manufacturing, energy, defence and transport. Engineering turns research into wealth, improving lives and drives social and economic progress. The £420 billion GVA that engineering contributes annually to the UK purse represents 25% of the entire UK economy and equates to £74,184 per head of the populationⁱ.

This success of engineering within the UK and globally is based on people – the best and brightest engineers and technicians at all levels. The engineering sector in the UK employs 7.5 million people (23.4% of the working population) 4.27 million of whom work as engineers or technicians performing vital roles inside and outside of engineering companiesⁱⁱ. The success of engineering industry (as well as higher education, research and innovation) is underpinned by international mobility – the ability of the UK to import and export its engineering talent to where it is most needed.

Worryingly, given the reliance of the sector on a steady supply of skilled workers, the UK is already experiencing a serious engineering skills shortage, with demand for engineers in the UK predicted to increase further in the immediate future. Work by EngineeringUK concludes that the UK will need 39,000 new engineers and engineering technicians per year until 2024ⁱⁱⁱ. The pace of technological change brought about by the fourth industrial revolution is already resulting in rapidly developing demand for new skills. Efforts to grow the domestic supply of skills by inspiring a new generation of engineers continues, but the long lead-times associated with the education system delivering these skills into the market means it will be impossible to fill all engineering roles via the UK pipeline in the short-term, leading to an ongoing reliance on non-UK workers.

According to the most recent estimates based on ONS Labour Force data, 8.3% of the engineering workforce is non-UK, compared to 7.2% of the entire working population, with many occupations within the engineering footprint having a much higher-than-average proportion of non-UK workers, such as construction and building trades (19.77% EU) and metal working and machine operatives (22.86% EU)^{iv}.

The long-term shortage of engineers in the UK, caused by numerous factors such as a lack of diversity in the profession, mean that engineering occupations feature prominently each year on the Shortage Occupation List. The Royal Academy of Engineering, Engineering Council and EngineeringUK have defined the 'footprint' of engineering occupations in the UK^v. Our analysis shows that, of the 34 occupations on the SOL, 17 are 'core' or 'related' engineering occupations, including all roles linked to civil, mechanical and electrical engineering.

The higher education sector, on which the growth of future engineering talent relies, is also currently heavily dependent on people from outside the UK. University engineering courses in the UK have a higher-than-average proportion of non-UK students. The £30,000 salary would also be detrimental to engineering research and innovation in the UK, as many important roles within the research and innovation workforce come with salaries which would not meet the proposed threshold, including research technicians who have specialist skills to operate equipment and maintain ongoing experiments.^{vi} For example, £26,280 was the median salary of science, engineering and production technicians at UK universities in 2017^{vii}. Research and

innovation thrives when people from different backgrounds and cultures are able to exchange and challenge ideas freely.

Given the high vacancy rates, low salaries and high dependency on EU workers in many engineering occupations, the proposed £30,000 salary threshold has the potential to have a significant impact on the engineering sector. Applying the proposed thresholds to the salary distribution of all UK SOC codes gives an indication of the numbers of workers in each SOC code that fall below it. Combining this with data on the number of EU workers within each SOC code produces an estimate of the number of workers that would no longer be eligible for work in the UK if the threshold was applied without exemptions.

Almost 2 million workers within engineering SOC codes are estimated to earn less than £30,000^{viii}. Importantly, these low salaries must not be considered an indication of skill level or experience. Many of these roles, such as civil engineering technicians, electrical technicians and precision instrument technicians are skilled trades. Just under 39,000 of the 64,440 technicians working in the UK under skilled 'welding trades' (SOC code 5213) earn below £30,000. Of these, 5,000 of these (12%) are from the EU, a group that accounts for 8% of the entire welding workforce. A significant proportion of these would not classify as new entrants and therefore be ineligible for a Tier 2 visa if a salary threshold was introduced.

Skills shortages and salaries vary significantly across the UK. The average salary for all engineering SOC codes in London is £37,171 whereas the equivalent figure for the East Midlands is £25,882^{ix}. There are plenty of examples within the engineering footprint of occupations with regional salary variations that place median salaries above and below £30,000 depending on the location of the role, with significant gaps between the two figures.

We acknowledge that engineering companies must do more to plan for recruitment once the UK has left the EU, but those that currently rely heavily on EU migration will not be capable of instigating large salary increases or relying on the existing domestic skills supply in the short term. A new immigration system must give companies enough time to adapt to change, whilst also encouraging the movement of migrants into high-demand regions and roles through variable salary thresholds.

A points-based system could allow greater flexibility for engineers and technicians, who would not be tied to a specific employer, to move freely between roles in order to seek higher wages or in response to developing skills demands. Any points based system should also provide a degree of autonomy to regions and the devolved nations as a means of addressing geographical variations in skills needs, drawing migrants towards high-demand areas. It should be evidence-based, drawing on an understanding of, and ability to react quickly to, changes in regional skills deficits.

If access to the EU engineering workforce becomes more restricted, before there is a strong enough domestic supply, it risks exacerbating the current skills shortage. The government must work with industry to identify gaps in essential skilled occupations that cannot be filled in the short and medium term. It must also use reforms to the migration system as an opportunity to draw skilled workers towards high-demand roles and address the emerging skills crisis.

Any points based system or salary threshold must take account of the relatively low salaries for skilled occupations within the engineering footprint, the large regional variations in salary, the current dependency on EU migration and the current challenges in securing home-grown skills.

The argument for maintaining the movement of engineers into and out of the UK is not purely based on a pressing need to fill roles. Engineering is fundamentally a team-based activity that is inherently collaborative and interdisciplinary. There is evidence to show that diverse teams deliver better results, including in terms of innovation^x. Consequently, it is vital to recognise that international mobility is, and will always remain, a fundamental and essential feature both of the industries that engineering serves and of the education sector on which the profession depends.

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- i 2019 data tables, EngineeringUK, 2019
- ii 2019 data tables, EngineeringUK, 2019
- iii 2019 data tables, EngineeringUK, 2019
- iv Calculations based on data from the ONS Labour Force Survey
- v https://www.engineeringuk.com/media/1572/engineering_uk_2018_annex.pdf
- vi £30,000 salary threshold would be detrimental for research and innovation, UK National Academies, May 2019
- vii Universities and Colleges Employers Association (2018), 'UCEA response to MAC report: Responding to recommendations of most concern to the higher education sector – November 2018
- viii From median salary distributions in ASHE Table 14: Earnings and hours worked, occupation and four digit SOC
- ix 2019 data tables, EngineeringUK, 2019
- x Credit Suisse Research Institute, "[Gender Diversity and Corporate Performance](#)" 2012 and [Diversity and Innovation, a Business Opportunity For All](#) – European Commission 2013