Engineering Professors' Council representation to the Spending Review 2025 – Phase 2

The Engineering Professors' Council (EPC) is the representative body for Engineering academics in higher education. There are currently 82 institutional members encompassing over 7,500 academic staff (permanent FTE). Our representation endorses the response of EngineeringUK to which we contributed and emphasises the importance of Engineering higher education to growth (particularly in target sectors and regions), opportunity and immigration. We offer further reflections specific to Engineering higher education.

The cost of higher education engineering provision significantly outweighs the domestic fee income which is a detriment to the pipeline of graduate engineers needed to meet the demand for 124,000 engineers and technicians required each year.

Estimates of a £1.4 billion loss to the HE sector on teaching domestic students[1] [2] are benchmarked against a static tuition fee, but this loss does not properly reflect the financial pressures on Engineering to make up over 40% of Engineering course running costs for domestic students. In 2019, the Department for Education measured Engineering at double the cost to run of many classroom-based courses, with an EPC-estimated tuition fee shortfall of £7,591 per year per domestic Engineering student in the 2025/26 academic year.

Domestic Engineering higher education in England is systematically sustained from provider resource, such as cross-subsidy from other subjects and, particularly, international students with consequences for immigration policies. To grow the UK engineering talent pipeline, additional funding is needed into Engineering higher education. Linking fees to inflation will create a greater sustainability as will an uplift in subject-specific funding.

1. Additional SPG funding of £750m to double funding for strategically important, high delivery-cost Engineering courses via the Strategic Priorities Grant and additional £150m to support provision of very high-cost STEM and at-risk Engineering provision.

Target department: Treasury / Department for Education

[1] https://www.universitiesuk.ac.uk/latest/insights-and-analysis/tuition-fee-rise-what-does-it-mean
[2] https://www.universitiesuk.ac.uk/sites/default/files/field/downloads/2024-01/pwc-uk-higher-education-financial-sustainability-report-january-2024.pdf

Provider estimates for the cost of running an Engineering degree are typically cited at between **£20,000 to £25,000 per student per year**, although this varies significantly depending on the institution, location and specific engineering discipline.

Based on the cautious findings of the Department for Education's *Measuring the cost of provision using Transparent Approach to Costing data*[3], with UUK inflation methodology applied, we estimate an average cost of **£18,819 per student for 2025/6**. By engineering discipline, the annual cost of running an Engineering course ranges from £16,242 for IT, Systems Sciences and Computer Software Engineering courses to £22,044 for courses in Mineral, Metallurgy and Materials Engineering.

	2018/19	2025/26
Mineral, Metallurgy and Materials Engineering	£15,047	£22,044
General Engineering	£13,257	£19,428
Civil Engineering	£12,797	£18,726
Mechanical, Aero and Production Engineering	£12,708	£18,610
Electrical, Electronic and Computer Engineering	£12,625	£18,466
Chemical Engineering	£12,436	£18,220
IT, Systems Sciences and Computer Software Engineering	£11,103	£16,242

Table 1: TRAC estimated average full teaching cost 2018/9 and 2025/6 for an OfS funded FTE Engineering student for 2018/19 (based on 2015-16 data returns for higher education institutions in England and Northern Ireland, uprated to 2018-19 prices to account for inflation based on UUK uplift[4]. Uses HESA cost centre.

The typical tuition fee for domestic students on an undergraduate Engineering course has been **£9,250 since 2017**, with recent announcements taking this to **£9,535.** The Strategic Priorities Grant (SPG) is funding supplied annually by Government to support teaching and students in higher education. In 2023-24, over half of the £1,454m total SPG budget is directed towards provision of high-cost subjects, including science, engineering and technology subjects and specific labour market needs. As an illustration, this amounts to £1,693.50 per OfS-fundable full-time home student per year in academic year 23/24 (in addition to tuition fee income) on Engineering degrees. Adjusting for the high-cost funding uplift for institutions delivering strategically important subjects, this leaves a*n annual* shortfall **of £7,591 per year per student**.

£24m on top of this is allocated to support provision of very high-cost STEM, to help providers maintain activity in subjects that have been vulnerable because of low student demand. This supports provision of Chemical Engineering, Physics, Chemistry, and Mineral/Metallurgy/Materials Engineering at HE providers, which are key subject pipelines for nuclear careers.

Adjusting for these high-cost elements (2023/24 levels) and taking HESA FTE headcount (2023) by cost centre as a conservative measure of English-domiciled first-degree Engineering student

3 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/909417/Measuring_the_cost_of_provision_using_transparent_approach_to_costing_data.pdf

numbers (2023), **the value of this underfunding annually going forwards equates to more than £897.5m** for Engineering alone.

Required infrastructure, beyond the sector norm – including specialised labs, procuring and maintaining equipment (including everything from computer labs and software for simulations), materials and machines for hands-on experiments for practical work – all contribute to the resource load. Engineering is a professional pathway, in which the standard of accredited degrees is assured both nationally and internationally (through alignment with international accords) through AHEP standards regulated by the Engineering Council. Engineering is both a strategically important subject domestically and a highly regarded international offer.

Running an Engineering degree is also staff intensive, requiring high-quality academic and support staff with 50% of all teaching staff needed to be professionally registered in order to be compliant with accreditation requirements. According to HESA and OfS data for the 2019/20 and 2020/21 academic years, universities in the UK typically allocated around **50-60% of their total expenditure to staff costs**, with higher amounts for resource-intensive programs such as Engineering. In 2024, PWC reported that staff costs account for c.54% of total expenditure leading to a material cost base exposed to inflation and salary negotiations.[5] In Engineering, restructures, redundancies and early retirement schemes have led to the attrition of the most experienced lecturers and senior staff, opting for final salary schemes instead of a pay cut, compounded by staff attrition to industry. Recruitment challenges have led to a culture of academic or industry-based hourly paid lecturers (HPLs) pushing up costs further and presenting course delivery uncertainty.

In Engineering, labs and hands-on learning necessitate smaller groups of students than can be catered for in large lecture approaches and this is coupled with higher contact time than for other subjects. Engineering courses also typically involve the use of expensive facilities, equipment and materials.

With providers left footing **44%** of Engineering course running costs from other sources cross-subsidisation from other subjects, research funding and international students is conventional.

Revenue implications for the Exchequer
We estimate that that the annual underfunding of domestic Engineering provision equates to more than **£897.5m**. We suggest that this could be funded through existing SPG and very high-cost funding mechanisms.

How the measure would support growth and wider macroeconomic implications
As is widely recognised, the engineering and technology labour market is already exhibiting signs of skills shortages (insufficient number of workers) and skills gaps (workers without the necessary up-to-date skills), with this having an impact on productivity and economic growth.

Engineering skills are central to the net zero transition, to key sectors highlighted in the Government's industrial strategy and, consequently, to economic growth in those sectors, particularly in target areas of the country. Therefore, ensuring a steady flow of new engineering talent must be a priority for this Government. Engineering higher education will play a vital role in this and Government must ensure that the sector is sustainable.

[5] https://www.universitiesuk.ac.uk/sites/default/files/field/downloads/2024-01/pwc-uk-higher-education-financial-sustainability-report-january-2024.pdf

Likely effectiveness and value for money
Without intervention, the threat of course closures and a diminishing capacity to meet the UK's skills needs in key industries is a real and significant issue. This has already been witnessed in Nursing in Wales[6] and the time lag in seeing widespread department closures in Engineering is due to the high levels of investment in expensive facilities and the resistance of HE providers to see the value of those assets turn into a loss. However, as those assets depreciate, in the current financial climate, they are likely to be equally resistant to renewing them. The need to intervene in what HE providers can afford to deliver and align educational offerings with the strategic requirements of the country is paramount.

A CBI report highlights that the one of the main current threats to the UK's labour market competitiveness is and access to skills (72%) and that closing future skills gaps could provide a £150 billion uplift in GVA by 2030[7].

2. A review of HE funding models

Target department: Treasury / Department for Education

In the long-term, we encourage the Government to evaluate how universities can be put on a sustainable financial footing, whilst incentivising the provision of high-cost STEM courses, without excessively penalising graduates or deterring prospective domestic students.

One such alternative university funding model is for a 'graduate employer levy', under which tuition costs would be spread more fairly between the beneficiaries of higher education through a levy of 3% of graduate earnings over £25,000 on employers and graduates alike.[8] Under such a system, the Exchequer would be removed from its role as guarantor and provider of loans, as higher education intuitions would receive income directly via the levy. As universities' long-term funding settlement would be linked to their ability to provide a valuable education to graduates, this system could result in a closer alignment with labour market needs, with the cost of more expensive STEM courses covered by higher levy returns.

Revenue implications for the Exchequer
Based on modelling by London Economics, the Higher Education Policy Institute (HEPI) has estimated that this funding model would save the Exchequer £8 billion annually (albeit universities would require low risk Government loans as levy income increases). This revenue could be used to drive social mobility in the sector by re-introducing means-tested maintenance grants and raising the level of maintenance loans for all students.

How the measure would support growth and wider macroeconomic implications
In addition to supporting the skills needs of UK plc, studying an Engineering degree delivers an excellent return on investment in terms of earnings and gives a greater boost to social mobility when compared to other subjects.

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[6] https://www.walesonline.co.uk/news/education/cardiff-university-job-cuts-400-30882168
[7] Ibid.
[88] See 'Scenario 4 – Modelling a Graduate Employer Levy' by Rich, J., in *How should undergraduate degrees be funded?*, HEPI (2024), ed Stephenson, R., https://www.hepi.ac.uk/wp-content/uploads/2024/04/How-should-undergraduate-degrees-be-funded-3.pdf

Choosing to study Engineering in higher education increases labour market success, one of the drivers of social mobility. EPC research found that data relating to graduates' earnings, backgrounds and entry qualifications suggests that the gap between the incomes of Engineering graduates from different socio-economic backgrounds was significantly smaller than for other graduates.

Likely effectiveness and value for money
The EPC *Engineering Opportunity*[9] report (2021) revealed that, ten years after qualifying**, the average salary of Engineering graduates was £42,700 – which is £11,700 more than the average of other graduates**. While some of this was down to pre-existing characteristics associated with higher earnings (such as higher entry grades, gender, region and social status), these factors could not account for the whole gap and the higher earnings were relatively evenly spread across the country.

3. Removal of the barrier to student immigration such as the ban on dependents at undergraduate and postgraduate study levels

Target department: Treasury / Home Office

EPC and UCL research estimates that approximately **10% of the fee income to the HE sector relates to student fee income in Engineering** (at UG and PGT level), roughly equally split between home fees and international fee income. This represents a significant dependency of domestic Engineering education on overseas income.

The latest HESA data[10] shows that **one in four Engineering first degree students are from overseas** (compared with c,15% across all subjects). At undergraduate level, **the average fee charged to international Engineering students was £19,536 in 2022** although there was wide variation with a range from £12,000 to £44,240 for a full-time programme. The average for the Russell Group fee was £28,762, whereas in non-Russell Group Pre-92 institutions it is £19,509 and in Post-92 institutions, £14,729. Institutions in the Russell Group account for over 60% of the international fee income to the sector despite accommodating <50% of the international student cohort.

2022 EPC/UCL research found that only a few sizable institutions (>1,000 Engineering students) generated less than 25% of their income from international students. For at least nine providers, we estimate over two-thirds of the income was generated from their international student intake.

If we compare our estimate of the Engineering student fee income to the HESA (2019/20) data for the total fee income of each university, we see that a small number of universities have a high level of dependence on Engineering students' fees. For two institutions, this is above 35% of their total student fee income. Four more are above 25% followed by a group of seven institutions around 20%.

Revenue implications for the Exchequer
Since 2021, the volume of both domestic and international first Engineering students has declined. Internationally, this is a result of a **20% reduction in EU enrolments year-on-year**

[9] https://epc.ac.uk/uploads/2021/05/Engineering-opportunity_final.pdf
[10] HESA HEDI+ All providers student FPE record, accessed 04/02/25

since 2021/22. International Engineering enrolments since 2021/22 have declined by 7.9% overall. Without a maintained international subsidy, the current funding model for domestic Engineering students will collapse.

Incidentally, HEPI and Kaplan International Pathways estimate the total gross benefits across the whole UK of one year's intake of international students amount to £41.9 billion. The total net benefits after taking account of the impact on public services are £37.4 billion.[11]

How the measure would support growth and wider macroeconomic implications
Due to the shortfall in home fees, the dependency of the development of home-grown domestic talent on international income is unavoidable in the current funding climate. And, with the demographic outlook of UK undergraduates seeing the number of 18-year-olds decline between 2030 and 2038 due to falling birth rates, home demand is set to fall in the context of rising international admissions. Domestic participation rates need to remain strong, given the need for engineering skills will remain critical for the economy.

Meanwhile, despite growth in the number of 18-year-olds between 2019 and 2023, EPC research on UCAS admissions for the Royal Academy of Engineering highlights a ceiling in the capacity of the engineering HE sector to accept more students. Stagnation in admissions to undergraduate Engineering is largely being driven by providers, who are mitigating against increased applications. EPC members tell us that this is in response to the unaffordable subsidy cost per student.

Likely effectiveness and value for money
As is widely recognised, the engineering and technology labour market is already exhibiting signs of skills shortages (insufficient number of workers) and skills gaps (workers without the necessary up-to-date skills), with this having an impact on productivity and economic growth. While international students are an asset in every way, they are not generally adding to the engineering skills pipeline as more than 95% do not stay in the UK for more than 5 years after graduation.

Given the dependency of domestic Engineering education on international students, free flow of international engineering talent should be a priority for this Government unless and until we can address the shortages in the domestic talent pipeline.

4. A shift towards full-cost funding or targeted strategic investment for research funding

Target department: Treasury
We must urgently address the systemic funding shortfalls in publicly funded STEM research. To safeguard the UK's leadership in innovation-driven economic growth, we must recalibrate our approach to research funding. A shift towards full-cost funding or targeted strategic investment is essential to unlock the full potential of research, ensuring it serves as a catalyst for both scientific discovery and industrial transformation.

Revenue implications for the Exchequer
A 20% uplift in funding available. Under the current framework, UK Research and Innovation (UKRI) and other public funding bodies typically cover only 80% of research costs.

How the measure would support growth and wider macroeconomic implications

[11] https://www.hepi.ac.uk/2024/06/20/new-constituency-level-data-prove-the-value-of-international-students-to-the-uk/

Beyond academia, this underfunding has profound implications for innovation and entrepreneurship within UK industry. Without adequate investment in frontier research, the pipeline of groundbreaking discoveries that fuel technological advancements and commercial spinouts is at risk. Startups and high-growth enterprises, which rely on cutting-edge research emerging from universities, may find their innovation potential stifled. In turn, this threatens the UK's global competitiveness in science and technology, hampering our ability to attract investment, create high-value jobs and establish new industries.

Likely effectiveness and value for money

While this model was once viable (sustained by teaching grants and more recently, tuition fee surpluses) it now serves as a significant constraint on research activity. The consequences are particularly severe for high-cost, speculative research, which is often the breeding ground for the next transformative breakthroughs in engineering and science.