

Autumn Budget 2024/Spending review

EngineeringUK stakeholder representation

EngineeringUK is a not-for-profit organisation that works in partnership with the engineering community to increase the pipeline of engineers and technologists. This submission sets out a range of policy proposals ahead of the Autumn Budget and Spending Review, drawing on our extensive research and first-hand experience of working with STEM educators and employers. Our proposals are modelled on five priorities for the new government for STEM and engineering education and skills, as outlined in our Policy Priorities:

- Grow and sustain engineering apprenticeships for young people
- Boost the uptake of T Levels
- Improve STEM teacher recruitment, training, and retention
- Deliver on careers provision
- Adopt a more strategic approach to engineering workforce planning.

The case for engineering education and skills investment

Adequate and targeted investment in education and skills initiatives will be essential to the government achieving many of its five missions, be that: breaking down the barriers to opportunity by offering every young person an opportunity to learn or upskill; kickstarting economic growth by providing for a strong labour market and high-skill, high-pay economy; or making Britain a clean energy superpower by investing in green skills.

At a time of strained departmental budgets, it is essential that the government does not lose sight of the need to invest in education and skills. Given the centrality of engineering and technology skills to the net zero transition, from heat pump installation to electric vehicle manufacturing, ensuring a steady flow up new engineering talent must be at the forefront of this agenda. Indeed, the Climate Change Committee estimates that the Net Zero transition could create up to an additional 725,000 jobs by 2030 in low-carbon sectors, many of which will be in engineering and tech.¹ The labour market is already exhibiting signs of skills shortages, with engineering vacancies accounting for one in four job adverts (25%) despite comprising one in five overall jobs (19%), whilst adverts for green engineering jobs have risen by 55% in the last five years.²

The new government has recently commissioned the Migration Advisory Committee (MAC) to review the high levels of international recruitment in the engineering sector, which as the Home Secretary outlines in her letter to the Committee chair, "reflect weaknesses in the labour market including

¹ Climate Change Committee, <u>A Net Zero Workforce</u> (2023)

² EngineeringUK, Facts and stats (2024)



persistent skills shortages in the UK".³ If the government is indeed serious about reducing the UK's labour market dependency on overseas talent, any long-term changes to immigration policy must be accompanied by broad-ranging and large-scale investment across the education and skills ecosystem. The recommendations outlined below are intended to break down specific constraints on the engineering talent pipeline, though are intended to form part of a broader package of education and skills reforms.

Policy recommendations

- 1 Grow and sustain engineering apprenticeships for young people
- 1.1 Move towards a new model of directly funding apprenticeships for young people between the ages of 16 and 18 through an increase to the Education and Skills Funding Agency (ESFA) budget

The government must take urgent steps to grow and sustain the number and diversity of young people taking engineering apprenticeships, reversing a declining trend in uptake over the past decade. Indeed, our research indicates that engineering-related apprenticeship starts have dropped by 9% since 2014/15, with those in engineering and manufacturing technologies down by over a third (34%). The decline has been driven predominantly by the drop-off in lower-level apprenticeships, particularly at Level 2, with engineering-related Level 2 apprenticeship starts falling by more than half between 2014/15 (63,250) and 2021/22 (down to 30,980).⁴

We understand the rationale behind the new government's ambition to provide greater flexibility within the Apprenticeship Levy. However, given that demand for apprenticeships vastly outstrips supply – applications for apprenticeships exceed supply by a ratio of 3 to 1, and engineering apprenticeships are no exception – we would encourage the government to consider potential unintended consequences for apprenticeships for young people. Given the limited underspend in the apprenticeship budget (£17m in 2023/24), there is limited headroom for reforms without more money being allocated to this budget.⁵

Accordingly, as and when the fiscal situation allows, we recommend that the government adopt a model of directly funding apprenticeships for 16- to 18-year-olds through an increase in the Education and Skills Funding Agency budget. This would help government to deliver on its manifesto pledge for a 'Youth Guarantee' of access to training, an apprenticeship or support to find work for every young person. Moreover, it would help to level the playing field between those young people choosing the apprenticeship route and those following academic routes via A levels or T Levels, education pathways which are fully funded by government. We estimate that this will cost in the region of £700 million per annum, reflecting the total spent on 16- to 18-year-olds via the levy and apprenticeship

³ https://www.gov.uk/government/publications/mac-commissioned-to-review-it-and-engineering-sectors/letter-from-the-home-secretary-to-professor-brian-bell-6-august-2024-accessible

⁴EngineeringUK, <u>Fit for the future</u>

⁵ DfE, <u>Annual Accounts 2023/24</u>



budget in the 2021/22 academic year. This could be funded through re-directing unallocated levy receipts which, based on OBR forecasts, returned an estimated £875m to the Exchequer in FY 23/24.⁶

If young people are unable to access training opportunities such as apprenticeships, the likelihood of them being Not in Education, Employment, or Training (NEET) increases. The University of York has estimated the lifetime cost to the Exchequer of a young person aged 16 to 18 being NEET as £56,000 in benefits, lost tax and national insurance contributions, as well as notional costs like health and criminal justice⁷. In contrast to that, the average cost for an apprenticeship for a 16- to 18-year-old stands at between £7,000 and £16,000. Indeed, according to the government's own estimates, each £1 of government funding invested in level 2 to 5 apprenticeships yields a £14 to £25 return.⁸

1.2 Additional funding to expand pre-apprenticeship support and traineeships for those aged 16 to 18 by building and improving existing routes into apprenticeships

In the immediate term, we recommend that the government increase funding for targeted initiatives to reduce the barriers to young people accessing apprenticeships, such as good quality preapprenticeship support and traineeships for 16- to 18-year olds. Traineeships (currently funded through the Adult Education Budget and delivered by Combined Authorities in some areas), for example, can enable young people who are at risk of becoming NEET to access apprenticeships, driving down levels of economic inactivity. Setting up a funding pot to enable providers and employers to deliver free traineeships and pre-apprenticeship support could therefore yield significant wider economic benefits.

We support Labour's proposals to make traineeships eligible for funding through the proposed Growth and Skills Levy, which according to the party's estimates, would fund 150,000 traineeships for young people if three per cent of revenues were spent by employers on traineeships. We encourage the government to keep under review the incentives for employers to fund traineeships (as opposed to other courses eligible under the Growth and Skills Levy) and provide subsidies if necessary to correct for an under-supply of routes into apprenticeships, should this persist.

1.3 Funding to develop a package of support for apprentices (and T Level students) up to the age of 25 in entry level and low paid work that addresses barriers such as travel and access costs, working with local and combined authorities

Another barrier preventing young people from accessing apprenticeships, as identified in our Fit for the Future report (October 2023), is concerns around travel costs and the cost of living. These circumstantial issues can be easily addressed through the development of a tailored package of support for young apprentices in entry-level and low-paid work who are struggling financially, offering, for example, subsidised travel. The government should work with local and combined authorities on this, providing funding either through the Adult Education Budget or as a standalone pot.

⁶OBR, '<u>Economic and Fiscal Outlook'</u> (2023)

⁷ https://www.york.ac.uk/inst/spru/research/pdf/NEET_Summary.pdf

⁸ Measuring the Net Present Value of Further Education in England 2018-19 (publishing.service.gov.uk)



1.4 Enable the roll-out of more Group Training Associations (GTAs) and continue funding existing GTAs, which support engineering SMEs with the recruitment of apprentices, training and access to levy funds

To ensure that all engineering, manufacturing and technology SMEs can easily access levy transfers and support to employ apprentices we also recommend that the government work with combined and local authorities to roll-out more Group Training Associations (GTAs). GTAs are not-for-profit training providers which are often involved in the delivery of apprenticeships with a high level of technical content requiring substantial off-the-job training, often operating in capital-intensive sectors such as engineering and construction. They support employers which have fewer resources to train apprentices (such as SMEs).⁹

The government should consider how Skills England, once established, can turbo-charge existing GTAs and promote the creation of new GTAs, to drive the recruitment of apprentices, the provision of training, and access to levy funds by SMEs. Policy interventions in this area could include defining the role of GTAs more clearly (particularly for employers and local authorities) and increasing direct government funding for their activities.

2 Boost the uptake of T Levels

2.1 Increase awareness of T-levels amongst employers, students and parents through the continued roll-out of nationwide advertising campaigns

We have welcomed the new government's commitment to continuing the roll-out of T Levels, as an integral part of the post-16 education landscape in England. However, the DfE must build on existing work with the engineering community and beyond to raise awareness of T Levels among employers, students and parents. Whilst the government has set aside funding for 100,000 T-level starts by the end of FY 2024/25, just 30,000 students enrolled in a T Level as of April 2024, indicating significant unfulfilled potential uptake.¹⁰

Among employers, our research has found that whilst most have heard of T-levels, only 28% understand what they involve; moreover, a large proportion of SME employers (37%) report not having heard of T-levels.¹¹ Among young people, EngineeringUK's 2021 Brand Monitor identified that 63% of young people did not know what T Levels are, with significantly geographical variations.¹² This is supported by Ofqual's findings in August 2023 that up to 43% of students had no understanding of what T-levels were. As more T-level subjects are rolled out, the Treasury should increase funding to further expand DfE's targeted nationwide advertising campaigns to promote uptake.

⁹Thames Academy, <u>Report of the Commission of Inquiry into the Role of Group Training Associations</u> (2012) ¹⁰DfE, <u>T Level Action Plan 2023 to 2024</u> (2024),

¹¹ EngineeringUK and MakeUK, <u>Unlocking talent: ensuring T Levels deliver the workforce of the future</u> (October 2022)

¹² EngineeringUK, Engineering Brand Monitor: Parents and Students (2021)



2.2 Work collaboratively with STEM employers and sector bodies to grow the number of T Level industry placements

Whilst provisional results indicating that 95% of T Level students graduating in 2024 completed an industry placement is promising,¹³ we have previously estimated that demand could rise to be between 32,000 and 43,500 placements in the engineering and manufacturing sector, a significant increase on current levels.¹⁴ The government should examine potential incentives for SMEs to offer T Level industry placements, such as by reinstating the £1,000 financial incentive or extending the employer support fund (providing employers with up to £12m in AY 23/24), and look to commit to offering these longer term. Furthermore, government should look at flexibilities such as extending the number of hours that placements can run in simulated work environments such as a training centre or skills hub.

2.3 Commit to funding BTECs for the full 2024/25 academic year to ease uncertainty facing students, FE colleges and providers, and to ensure that there remain alternative Level 3 technical qualification pathways alongside T Levels

We have welcomed the government's decision to immediately pause defunding for BTECs until December 2024, with a view to undertaking a rapid and focused review of level 3 qualifications. We call on the government to provide clarity to providers, students and parents on the longer-term future of BTECs beyond September 2025 at the earliest opportunity, recognising that BTECs represent an important alternative pathway alongside T-levels. At the very least, the government should confirm to students, colleges, and providers that funding for BTECs will be protected at least for the current 2024/25 academic year.

3 Improve STEM teacher recruitment, training and retention

3.1 Sustain existing Initial Teacher Training funding for STEM subjects, including key practical subjects such as Design & Technology

We have welcomed the new government's commitment to recruiting 6,500 new specialist teachers within the current Parliament as a positive step towards addressing the serious teacher shortages facing schools and further education providers. The teacher recruitment crisis is particularly acute for STEM subjects, with DfE data published in December 2023 showing that only 54% of all STEM subject recruitment targets were met, with physics faring particularly badly at just 17% and Design & Technology (D&T) not far behind at 25%. Along with a weak retention rate, this has resulted in a significant drop in the number of D&T teachers in the profession, by 14.2% between 2018/19 and 2020/21.15 For STEM subjects, DfE data shows that teacher vacancies stood at 1,600 in November 2023, up from 1,300 the previous year and 360 in 2010/11.¹⁶

¹³ DfE, Provisional T Level results 2023/24 (2024)

¹⁴ https://explore-education-statistics.service.gov.uk/find-statistics/provisional-t-level-results

¹⁵ https://www.engineeringuk.com/research-policy/educational-pathways-into-engineering/educational-pathways-into-engineering/

¹⁶ https://explore-education-statistics.service.gov.uk/find-statistics/school-workforce-in-england



The expansion of the 'Every Lesson Shapes a Life' teacher recruitment campaign and the restarting of the 'Share Your Skills' campaign represents a step in the right direction, though the government must ensure it prioritises recruitment for subjects facing particularly acute shortages. A high proportion of STEM subjects in England are taught by non-specialist teachers, with 80% of engineering secondary school teaching hours for engineering delivered by a non-specialist in the 2022/23 academic year, whilst Physics and D&T came in at 28% and 21% respectively.¹⁷

To ensure that recruitment targets are fulfilled, the new government should also commit to retaining – and where necessary, increasing – Initial Teacher Training Bursaries for STEM subjects. We have welcomed increases in ITT bursaries to £28,000 for chemistry, mathematics, and physics, as well as up to £25,000 for design and technology.¹⁸ However, the persistent shortfall in STEM recruitment targets in recent years will have yielded a substantial saving against the expected outlay on teacher training, which the government should consider re-investing in recruitment and retention schemes.

3.2 £29 million per annum to invest in high-quality Continuing Professional Development for STEM teachers, yielding a significant return on investment through increased retention rates and improved quality of STEM teaching

The government must also ensure that teachers have the training and STEM subject specific Continuing Professional Development (CPD) needed to deliver quality learning for young people. Investing in CPD enables STEM teachers, especially those without the relevant STEM qualifications, to teach STEM effectively, increasing the quality of STEM teaching, teacher retention and student progression. Indeed, analysis commissioned by Wellcome has found that providing science-specific CPD increases the odds of STEM teachers staying in the profession the following year by 160%, from 1 in 12 leaving to 1 in 30.¹⁹

In a 2021 report, the Royal Society estimated that a 1.5% improvement in the retention rate of teachers would mean that 8,800 teachers from each annual cohort remain in the profession until retirement, saving at least £126 million in recruitment and training costs.²⁰ The same report calls on the government to commit roughly £29m for science CPD per annum, a demand which we would reiterate for the next spending review period.

Deliver on Careers Provision

- **3.3** Publish a long-term careers strategy, backed by funding in the region of £30 million per annum, to support schools to better resource careers education in the following areas:
 - Enable all schools to allocate more time for their designated Careers Leader to focus on developing and supporting careers activities in their school
 - Ensure all schools can offer an annual careers guidance meeting for students in Years 9, 10, and 11 with a qualified careers adviser

- 2025#:~:text=In%20other%20subjects%2C%20the%20grant,design%2C%20English%2C%20music%20and%20RE ¹⁹ https://wellcome.org/press-release/cpd-improves-science-teacher-retention
- ²⁰ https://royalsociety.org/news-resources/publications/2022/science-education-for-a-research-and-innovation-economy/

¹⁷ DfE, Specialist teachers in state funded secondary schools from 'School workforce in England' (2023)

¹⁸ https://www.gov.uk/government/publications/funding-initial-teacher-training-itt/funding-initial-teacher-training-itt-academic-year-2024-to-



• Support teachers' and careers advisers' understanding of STEM careers and their integration into the curriculum through accredited CPD, coordinated through the existing national careers infrastructure including local Careers Hubs.

Despite progress in careers provision over recent years – indeed, national school performance against the Gatsby Benchmarks for good career guidance has more than doubled in the last 5 years – there remains significant work to be done.²¹ For example, a survey of careers leaders and staff EngineeringUK conducted in April 2024 reveals that only 26% of respondents say that their school offers personal guidance interviews with a careers professional before Key Stage 4, whilst only 59% said their school engages with employers annually.²² More broadly, the Children's Commissioner has found that one-in-three secondary schools pupils report that they do not know enough about good jobs available to them after leaving school, a key contributor to rising skills shortages and NEETs.²³

Labour's campaign commitments to train 1,000 new careers leaders and ensure all careers advisors have up-to-date knowledge of post-16 pathways are welcome; however, they must be backed by a comprehensive, sufficiently-resourced careers strategy. This strategy should continue to build on the Gatsby Benchmarks, look to address persistent inequalities in careers provision, and ensure sufficient funding for comprehensive careers provision. It should initially be backed by a funding boost for careers support of £30 million annually, an average of £8k per secondary school or college, with a view to scaling this up over time. There is extensive academic evidence that good careers guidance yields significant economic benefits for both the individual, in terms of higher salaries and improved financial stability, and the Exchequer, in terms of supporting the effective functioning of the labour market and higher tax receipts.²⁴

Our research has identified staffing and time constraints as a major barrier to STEM careers provision, with only 22% of respondents saying that their school have a full-time equivalent careers leader, whilst 46% of respondents also identified funding as a significant barrier to STEM careers provision.²⁵ Accordingly, the government should aim to ensure that all schools can allocate more time for their designated Careers Leader to focus on developing and supporting careers activities. It also essential to ensure that careers advisors have the necessary CPD, so that they can convey up-to-date knowledge of modern engineering and technology careers.

²¹ https://www.gatsby.org.uk/education/latest/new-national-data-reinforces-the-impact-of-the-gatsby-benchmarks-onyoung-people-s-futures

²² EngineeringUK, 'Advancing STEM Careers Provision in England' (2024; not yet published online)

²³ Children's Commissioner, The Big Ambition (2024)

²⁴ E.g. Percy, C. and Dodd, V. 'The economic outcomes of career development programmes' (2020); Kashefpakdel, E. T. and Percy, C. 'Career education that works: An economic analysis using the British Cohort Study' (2017)

²⁵ EngineeringUK, 'Advancing STEM Careers Provision in England' (2024; not yet published online)



3.4 Commit to sustain funding for the STEM Ambassadors programme via UKRI at £5 million per annum over the spending review period

The STEM ambassadors programme (delivered by STEM Learning) represents a highly effective means of connecting young people with STEM employers via outreach in schools, colleges, and universities, thereby helping to fill key vacancies in the engineering and tech sectors. According to UKRI estimates, between 2016 and 2021, approximately 143k STEM ambassadors were registered to the programme and delivered over 181k activities, engaging between 15.2m and 25.7m young people.²⁶

Funding for the programme from 2019 to 2022 stood at £5m per annum. The government should commit to sustaining these funding levels for the programme over the spending review period.

3.5 Reaffirm the government's commitment to spend £85 million by 2028/29 to provide two weeks' work experience for every student, as pledged in Labour's General Election manifesto, and set out a roadmap for how this funding will be allocated

As part of a comprehensive careers support programme, we also call on the government to set out a roadmap for how it will distribute the £85 million in funding to provide two weeks' work experience to every student, as pledged in Labour's manifesto. The ambition of this roadmap should be to ensure that all students can access meaningful work experience with a range of employers, including more STEM employers.

Exposure to a relevant sector at an early age (e.g., during Year 10) can help to promote STEM careers for young people, increase their motivation and attainment in STEM subjects at school, and encourage them to pursue routes into STEM careers through post-16 academic or technical qualifications. Indeed, the Education Endowment Foundation found that children eligible for free school meals who received work experience via the Generation STEM programme made the equivalent of one month's additional progress in mathematics and science.²⁷

4 Adopt a more strategic approach to workforce planning

4.1 Commit to establishing a National Engineering and Technology Workforce Strategy, consolidating the work of existing taskforces

The government must take a more strategic approach to address skills shortages and the UK's changing labour market needs. The establishment of Skills England presents an opportunity for the new public body to oversee a National Engineering and Technology Workforce Strategy, by convening employers, training providers, local authorities, and government departments. This workforce strategy would also align with a new Industrial Strategy and the work of the Migration Advisory Committee to provide a unified vision for the sector.

Background on EngineeringUK

²⁶ UKRI, <u>STEM Ambassador programme review: a report for UKRI</u> (2022)

²⁷ Education Endowment Foundation, '<u>Testing the impact of preparing for, applying for and participating in STEM-related</u> work experience' (2021)



EngineeringUK is a non-profit organisation that works with more than 400 organisations to inspire and enable young people from all backgrounds to progress into engineering and technology careers. We directly reach more than 120,000 young people each year with activities such as the Big Bang Programme, which are designed to excite them about the variety of opportunities presented by a career in modern engineering and technology.

As an organisation, we pride ourselves on providing in-depth research and evidence-based recommendations on a range of themes, from STEM education in schools to apprenticeships and technical qualifications. For example, we have recently published reports on the careers provision in schools and colleges, T Levels, Net Zero Workforce, and most recently apprenticeships via our Fit for the Future Inquiry, co-chaired by Lord Willetts and Lord Knight.

We work closely with government departments, including the Department for Education and the Department for Science, Innovation and Technology, to support the development and implementation of policies with the ambition of securing the future pipeline of engineers and technologists.

If you would appreciate any further information on the below proposals, or to discuss EngineeringUK's work more generally, please do reach out to <u>jgordon@engineeringuk.com</u>.