Autumn Budget 2025

EngineeringUK Stakeholder Representation

EngineeringUK is a not-for-profit organisation that works in partnership with the engineering community, including over 400 businesses, to increase the pipeline of engineers and technologists. EngineeringUK's mission is to enable more young people from all backgrounds to be informed, inspired and progress into engineering and technology, through research and evidence, leadership, activities for schools and advocacy.

This submission sets out a range of spending proposals for the Autumn Budget 2025, drawing on our extensive research and first-hand experience of working with STEM educators and employers. The recommendations are aimed predominantly at the **Treasury,** the **Department for Education (DfE)**, the **Department for Science, Innovation and Technology (DSIT)** and the **Department for Work and Pensions (DWP).**

If you would appreciate any further information on the below proposals, or to discuss EngineeringUK's work more generally, please reach out to James Gordon, Public Affairs Adviser – jgordon@engineeringuk.com.

Summary of Spending Priorities

Policy proposal	Target departments	Revenue implications for the Exchequer	Funding source
1. Invest in careers-linked STEM activities in schools to expand pathways into employment in the IS-8 growth sectors 1.1 Create a robust evidence base for more impactful STEM careers activities and drive its use (£2m pa); 1.2 Support schools to identify effective STEM careers activities (£0.2m); 1.3 Enable every student in Key Stage 3 to have a STEM careers day (£7m pa) and sustain current £5m pa for STEM Ambassadors (cost neutral as in line with current funding).	**Treasury, DfE, DSIT**	**£9m per annum** *(Plus £5m pa for STEM Ambassadors programme in line with current funding)*	£85m manifesto pledge for careers and work experience by 2028/29, funded through applying VAT to independent schools.[1]
2.1 Pilot increased apprenticeship support for SMEs, including a new £3,000 grant for SMEs employing entry-level apprentices on standards key to the IS-8 growth sectors	**Treasury, DWP**	**£100m per annum**	Surplus generated by Apprenticeship Levy receipts (est. £750m in 2024/25)[2]
2.2 Fund local brokerage services to support SMEs to recruit and retain apprentices, such as Group Training Associations	**Treasury, DWP**	**£10m per annum**	Surplus generated by Apprenticeship Levy receipts

[1] Labour's 2024 General Election manifesto pledged £85m per annum to fund "improved careers provision and two weeks' work experience for every young person" by 2028/29.
[2] The HMT 'topslice' (revenue minus apprenticeship budget and Barnet consequentials) totalled an estimated £860m in FY 2024/25. Source: Fabian Society (2025), Levying Up: How to make the Growth and Skills Levy work

3.1 Sustain existing Initial Teacher Training (ITT) bursaries for STEM subjects, including key practical subjects such as Design and Technology.	Treasury, DfE	*Cost neutral as in line with current funding levels*	No additional funding required
3.2 Invest in high-quality Continuing Professional Development (CPD) for STEM teachers	Treasury, DfE	£29m per annum	Range of options, e.g. applying VAT to independent schools
4. Commit sufficient funding to implement the changes recommended by the Curriculum and Assessment Review	Treasury, DfE	*Cost implications subject to the Review's publication*	*To be determined*

Rationale for STEM education and skills investment

The importance of a long-term approach to education and skills investment

The government has set out ambitious long-term targets for investment, growth, and skills, with clear policy direction signalled by the 10-year Industrial and Infrastructure Strategies. Similarly, the new target of at least 10% of young people under 25 undertaking higher-level technical qualifications and apprenticeships by 2040, as part of a wider target for two-thirds of young people pursuing higher-level learning, offers positive scope for impactful long-term policy interventions.

However, boosting capacity on relevant post-16 education and training courses will not in itself secure the workforce needed for the Industrial Strategy and economic growth, unless sufficient efforts have been made to ensure a strong pipeline of young people filling places on these courses. Hence, interventions in the school system are vital to ensuring a future supply of skilled talent: young people should have access to modern work experience, sustained engagement with employers, and high-quality STEM teaching (including hands-on practical activities) throughout their educational journey.

Whilst re-skilling and lifelong learning undoubtedly have an important role to play, much of the current and future workforce demand in the Industrial Strategy priority sectors ('IS-8') will be filled by new recruits, most of whom are currently of school age. This underlines the fact that initiatives to upskill the existing workforce must align with longer-term interventions in the school system and post-16 education, requiring effective collaboration between DfE and DWP, with backing from the Treasury. To this end, EngineeringUK has called on Skills England to 'back-cast' skills demand (particularly in the IS-8) to determine how many students need to enter engineering and technology pathways, such as STEM A Levels, apprenticeships, or T Levels.

More broadly, education and skills initiatives must be understood by the Treasury and Office for Budget Responsibility as a driver of growth, with human capital treated as a positive on the balance sheet in the same way as other productive forms of capital.

Engineering and technology skills as a driver of growth

All the 'IS-8' growth-driving sectors are reliant on occupations in the engineering and technology footprint, with some heavily reliant, most notably advanced manufacturing, clean energy industries, defence, digital technologies, and life sciences. The Net Zero transition alone is forecast by the Climate

Change Committee to create up to an additional 725,000 jobs in low-carbon industries by 2030, for example, whilst there are 55,000 long-term unfilled vacancies in manufacturing.[3]

However, there remains a significant shortfall in the supply of engineering and technology skills relative to demand, with engineering vacancies accounting for 25% of all UK job adverts- despite engineering roles making up only 19% of the workforce.[4] A recent survey by the Institution for Engineering and Technology (IET) reported that 76% of engineering employers struggle to recruit for certain skills, especially technical and specialist sustainability skills (30%).[5]

Many of the most in-demand roles in IS-8 sectors are in engineering and technology. For example, Skills England's 'Priority Skills to 2030' report identifies engineering as one of 4 occupational areas forecast to have the greatest additional employment demand to 2030. Furthermore, all 8 occupations in demand in at least 4 of the 10 priority sectors are in engineering and technology.[6] Moreover, EngineeringUK's analysis of Skills England's 'Occupations in Demand' dataset found that of the 6.1 million-strong engineering workforce, 555,000 workers are in 'critical demand' roles (10% of the sector), with an additional 2.7 million workers in 'elevated demand' roles (50% of the sector).[7]

Given the transferrable nature of engineering and technology skills across sectors – for example, the same welding competencies are required in carbon capture, usage and storage and hydrogen infrastructure, shipbuilding and rail manufacturing, and building retrofit and modular housing – a joined-up approach to skills development is essential to avoid competition and cannibalisation of the workforce across sectors. Whilst individual sector workforce plans are being drawn up by government departments for the growth sectors (such as the Clean Energy Workforce Plan), these must be underpinned by a cross-government engineering and technology workforce plan. As well as taking a strategic approach to engineering and technology skills, this plan should focus on building a future pipeline of engineers and technologists through high-quality STEM education in schools.

Diversity as a route to addressing workforce shortages and driving innovation

As well as lacking in overall supply, the engineering and technology sector workforce lacks diversity, undermining its ability to grow and to harness the diversity of thought that is vital for innovation in this sector. Women, for example, only make up 17% of the engineering and technology workforce, compared with 56% in the wider workforce.[8] Other demographic groups are also under-represented, albeit to a lesser extent: 12% of the engineering and technology workforce are from UK minority ethnic groups, compared with 16% in other occupations, with similar comparisons being 14 vs 18% for disabled people and 24% vs, 26% for people lower socio-economic backgrounds.

As well as impacting the productivity and relevance of engineering and technology activities, this lack of diversity creates a significant societal inequity, limiting the access of people from certain

[3] Climate Change Committee (2023), A Net Zero workforce
[4] EngineeringUK (2023), Engineering skills needs – now and into the future
[5] IET (2025), 2025 UK Engineering and Technology Skills Survey
[6] Skills England (2025), *Assessment of Priority Skills to 2030*
[7] Based on Skills England's 2024 'Occupations in demand' dataset. Cited in EngineeringUK, 'Pathways to success: Shaping foundation apprenticeships in engineering and technology' (2025).
[8] EngineeringUK, Women in Engineering and Technology (May 2024)

demographic groups to careers that are in demand and paid roughly a third more than average.[9] Various government strategies and sector plans recognise the importance of improving diversity, particularly in relation to gender – the '35 by 35' target aims to increase women's representation in advanced manufacturing to 35% by 2035, for example – however, these ambitions require concrete plans if they are to be reached, as well as funding from Treasury and joined-up thinking across government.[10]

There are a multitude of factors affecting perceptions of and interest in engineering and technology careers, and experiences differ greatly across demographic groups, with significant gender differences already apparent at the beginning of secondary schools. The Science Education Tracker shows that just 12% of girls in years 10 and 11 say being an engineer fits well with who they are and only 16% think a career in engineering is suitable for someone like them, compared to 38% and 44% respectively for boys.[11]

It is unsurprising, then, that in 2025, only 19% of A Level computing entries and 24% of A Level physics entries were by young women; indeed, no girls took A Level physics in one in three (32%) schools.[12] This pattern is mirrored in trends across technical pathways. Despite a minor uptick in recent years, young women comprise only 12% of engineering and technology T Level entries and 17% of engineering and technology-related apprenticeship starts, compared to 52% across all subjects.[13] A strong evidence base is vital to determining the most cost-effective interventions to prevent girls from turning away from careers in engineering and technology at a young age.

Policy Recommendations

1. Invest in career-linked STEM activities in schools to expand pathways into employment in the IS-8 growth sectors

Target departments: Treasury, Department for Education, Department for Science, Innovation and Technology

Policy context

As demonstrated by Careers and Enterprise Company research, students with higher career readiness are more likely to be interested in areas of labour market need.[14] The same report finds that a significant improvement in career readiness is driven by structured careers education and employer engagement across schools and colleges, which resulted in 80% of Year 11 students reporting that they now understand the skills employers are looking for- with 83% having a plan for their next step.

Similarly, EngineeringUK's research shows that school students who attended one or more STEM careers activity are 3.5 times more likely to know what people working in engineering do, and 3.4 times more likely to consider a career in engineering.[15] These programmes are particularly important

9 EngineeringUK, Engineering skills needs – now and into the future (May 2023). *"The average advertised salary in engineering (£38,600) almost 30% higher than the average salary for all occupations (£30,000)."*

10 Department for Business and Trade (2025), Advanced Manufacturing Sector Plan

11 EngineeringUK (2023), Science Education Tracker

12 EngineeringUK, A level and Scottish Higher Results (August 2025); FFT Education Datalab (2024), The schools that send no pupils on to A Levels

13 EngineeringUK, Apprenticeship pathways into engineering (2024)

14 CEC (2023), Careers Education 2022/23: Now & next | The Careers and Enterprise Company

15 EngineeringUK (2022), Engineering brand monitor: Parents and students

for reaching groups of students who are less likely to engage in STEM, such as female students, those from lower socioeconomic backgrounds, people from certain UK minority ethnic groups, and SEND students.

We know that at least 330 organisations are currently active in designing, delivering and funding STEM activities and there are probably hundreds more.[16] Despite the efforts of these organisations, the provision of STEM activities remains patchy and dependent on schools' relationships with local employers and outreach organisations, which can be challenging in more rural areas and those with a low concentration of industry. Indeed, 43% of schools report that they do not engage with STEM employers annually, limiting exposure for students.[17] This is in large part due to costs and capacity constraints, as highlighted by an EngineeringUK survey of careers leaders in 2024, in which 46% of respondents said that funding is a significant barrier to STEM careers provision in their school.[18]

Back in 2013, the Perkins Review, led jointly by the then-Department for Business, Innovation and Skills and the Royal Academy of Engineering, raised concern that teachers struggled to assess the quality and relevance of STEM activities. It recommended the simplification and coordination of STEM outreach and underlined the need for sustained engagement for students. This was reinforced in a follow-up report in 2018.[19]

While the Careers & Enterprise Company and EngineeringUK research cited above suggests that careers activities do add up to make a difference, we lack evidence on the impact of specific activities, as few have been meaningfully evaluated. Indeed, the Hg Foundation's review of the evidence base for interventions on girls and women in STEM found a lack of both secondary and undergraduate-level counterfactual evaluation, as most studies measured only intermediate, self-reported outcomes just after the intervention, such as girls' interests or intentions, rather than changes in uptake or achievement.[20]

Spending asks

As a first step, the government should urgently publish a roadmap outlining its plans to spend the **£85m per annum** to fund improved careers provision and two weeks' work experience for every young person by 2028/29, as pledged in Labour's General Election manifesto last year. As outlined in the manifesto, this could be funded through the revenue generated from applying VAT and business rates to private schools. It should be designed in partnership with the Careers and Enterprise Company as well as other key delivery partners, including EngineeringUK.

Increased funding would:

- Enable schools to allocate more time for their designated careers leader to focus on developing and supporting careers activities in their school and offer modern work experience opportunities to all young people, aligned to key growth sectors.
- Ensure all schools can offer an annual careers guidance meeting for students in Years 9, 10, and 11 with a qualified careers advisor, in line with the Gatsby benchmarks.

[16] There are over 330 Signatories to the Tomorrow's Engineers Code who are involved in designing, delivering and funding STEM activities.
[17] Royal Society and EngineeringUK (2023), Science Education Tracker 2023
[18] EngineeringUK (2024), Advancing STEM careers provision in England
[19] Royal Academy of Engineering (2018), Engineering Skills for the Future – The 2013 Perkins Review Revisited
[20] HG Foundation (2024), Girls and women in Computer Science: A rapid review of intervention review evidence

- 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.

Whilst a large proportion of this fund has been earmarked for supporting schools to hire and upskill career advisers, part of this £85m fund should also be used to: (1) create the evidence base for more impactful STEM careers activities and drive the use of evidence; (2) help schools identify effective STEM careers activities; and (3) enable every student in Key Stage 3 to have a STEM careers day, building ongoing relationships with local employers.

1.1 Create a robust evidence base for more impactful STEM careers activities and drive its use

Funding ask: £2m per annum

This includes supporting organisations that provide engineering and technology engagement activities to take an evidence-based approach to improving their delivery.

A fraction of the many hundreds of outreach activities or interventions occurring each year have been robustly evaluated; more should be done to ensure that money being spent on these activities achieves the intended outcomes.[21] In a sample of 103 organisations involved in engineering and technology interventions in 2024, for example, only a quarter (24%) said that they used trained evaluators and many identified feedback and/or evaluation as something that they would like support to improve.[22] Similarly, a recent evidence review of interventions to increase the uptake of computer science by girls and women noted a lack of meaningful evaluations in the UK.[23]

Hence, we recommend that the government fund the creation of a new STEM-focused What Works Centre to build the evidence base for interventions that result in more diverse young people on pathways into engineering, technology and digital careers, at an estimated cost of **£2m per annum** (or £10m over 5 years). We note the government's guidance on setting up a What Works Centre and are confident that this proposal meets the criteria for what works research.[24]

Following the Perkins Review that demanded more coherence across the sector and building upon the collaborative success of the government-led Year of Engineering in 2018, government departments and industry partners supported the development of the Tomorrow's Engineers Code.[25] There are now over 400 members of the Code community working together to improve the number and diversity of young people progressing into the engineering and technology workforce. The Code drives collaboration, coordination and connection with organisations sharing learning and improving practice together. We believe that the Code community would be well-placed to support the dissemination and application of the findings of the What Works research.

The Code's membership includes a variety of organisations including government departments, corporates, universities, research organisations and engagement practitioners. Of the 168 respondents to the Code's 2025 check-in, a quarter said it helped them improve in all 10 areas asked about, with the average being improving in six areas. 73% of members better understood how their

[21] Careers and Enterprise Company, 'Careers Education 2022/23: Now and Next' (March 2024)
[22] Tomorrow's Engineers Code, The Code Check-in report (2024)
[23] The Hg Foundation, Girls and women in Computer Science: A rapid review of intervention review evidence (2024)
[24] Evaluation Task Force, Considerations around Setting up a What Works Centre (2022)
[25] Government partners included the Department for Education and the-then Department for Business, Energy and Industrial Strategy (BEIS).

activities related to others STEM outreach activities and 65% collaborated with others. In addition, 63% improved the diversity of the content in their activities in terms of roles, opportunities and pathways. While the Code had support, including from government in its early years, EngineeringUK now fully funds it.

1.2 Support schools to identify effective STEM careers activities

Funding ask: One-off investment of £0.2m

EngineeringUK's Neon digital platform was launched in response to recommendations of the Perkins review to help primary and secondary school teachers bring STEM careers to life through real-world engineering and technology experiences. It currently provides 152 curated engineering and technology activities from 57 organisations, tailored to different age groups and curriculum needs, as well as career-linked resources, including case studies, career route maps, and guidance materials aligned with the updated Gatsby Benchmarks.

With 22,000 educators using the platform per year, it supports career readiness through career route mapping for students that are deciding next steps, as well as case studies of diverse engineers, including apprentices and graduates, to challenge stereotypes and broaden horizons. It has been designed in collaboration with the CEC and STEM Ambassadors to interlink with and complement their offers and has been running for 5 years. Schools can also apply for bursaries to support delivery of activities listed on Neon.

A **one-off investment of £150,000** is needed to re-configure Neon to encompass all STEM subjects (it currently focuses on engineering and technology), to take an educator and schools-focused approach, and to better embed activity in the (new) curriculum and enable schools to meet the updated Gatsby Career Benchmarks. This will also enable us to provide different zones on the platform relating to the IS-8 and other areas of labour market need and government focus. EngineeringUK would be able to cover the on-costs of running the site in future years.

1.3 Enable every student in Key Stage 3 to have a STEM careers day, building ongoing relationships with local employers.

Funding ask: £7m per annum in FY 2026/27, as well as continuing current spend of £5m per annum for STEM Ambassadors

Given the limited provision of STEM careers activities in schools, and the fact that employers typically work with older age groups, government should provide funding to ensure that every Key Stage 3 student has at least one high quality STEM careers day at this critical age, as they develop their career aspirations and before they make their subject choices.[26] The event would provide one of the government-required ten days of work experience and would draw activities and role-models from local STEM employers, building ongoing relationships with the school that could lead to further activities, traditional work experience, industrial placements or apprenticeships.

In the 2024-25 academic year, EngineeringUK delivered such an effort with 'Big Bang at School', to 122 secondary schools across the country, reaching over 31,000 young people typically across Years 7-9. Overall, young people enjoy their Big Bang at School event, learning about what engineers can do in their jobs and leaving them with an appetite to do more STEM activities (57%), as well as increasing

[26] Research by the Careers and Enterprise Company found that around half (47% and 52%) of year 7 and 8 student reported receiving employer encounters, compared to over three-quarters (77% and 80%) of year 10s and 11s. Source: Careers and Enterprise Company (2024), 'Careers Education 2022/23: Now and Next'

their motivation to find out more about STEM careers, with 48% reporting that they are more motivated to find out more about engineering jobs.

We can use our experience of Big Bang at School to give an indicative cost to reach every Key Stage 3 student and guarantee a baseline of STEM careers provision. We would run a high-quality event in 80% of schools in England every year by the end of a 3-year period, starting with 50% of schools engaged in year 1. This would be at an indicative cost of **£7m per annum** for a minimum of 3 years. This model would initially provide a high level of support to deliver, reducing over the 3-year period to ensure the event is embedded in the school's annual calendar.[27]

Should EngineeringUK run the national effort, we would work with the Careers & Enterprise Company's infrastructure of Hubs across the country to identify local employers as well as drawing on organisations involved in Neon and the Tomorrow's Engineers Code – this would help hubs and schools increase their pool of relationships and their future STEM engagement. We would sustain impact beyond the year of delivery by providing schools with a 'Big Bang Blueprint', a framework from which they can run their own event independently in subsequent years. Schools with a high proportion of students that are underrepresented in the industry will be further supported with a bursary of £650 to ensure they are enabled to deliver a high-quality day (this is included in the aforementioned cost).

We would be drawing on the national network of STEM Ambassadors, as we and hundreds of other organisations also do, to support STEM engagement on a day-to-day basis. We ask that the government continues to fund the STEM Ambassadors programme, currently supported via UKRI at a cost of approximately £5m per annum.[28]

2. Increase support for SMEs to boost the apprenticeship offer for young people

Target departments: Treasury, Department for Work and Pensions

Policy context: Decline in entry-level apprenticeships in engineering and technology

We have welcomed the government's commitment to a new target for two-thirds of young people to participate in higher-level learning, including university degrees, apprenticeships, and higher-level qualifications at level 4 and above, by age 25. However, in doing so, it must be careful not to inadvertently close off key entry routes into engineering and technology careers for young people through level 2 and 3 apprenticeships, which are a key driver of social mobility.

EngineeringUK analysis of Skills England's 'Occupations in demand' dataset reveals that of the 436,000 workers employed in engineering and technology occupations designated level 2 in England, 46% are in critical-demand or elevated-demand occupations.[29] Many of these in-demand occupations are heavily concentrated in IS-8 sectors and construction, such as rail construction and maintenance operatives and crane drivers. Moreover, of the 2.1m engineering and technology workers at levels 3 to 5, 1.3m (59%) are in critical-demand or elevated-demand occupations.[30]

[27] EngineeringUK's Big Bang at School programme costs approximately £3,000 per school to deliver, alongside existing sectors partners. We estimate, therefore, that scaling the programme up to reach the approximately 80% of schools would cost in the region of £7m per year.
[28] For more information, see: STEM Learning, STEM Ambassadors
[29] EngineeringUK analysis of Skills England's 2024 'Occupations in demand' dataset. The skill levels used in Skills England's datasets are ONS skill levels. Cited in EngineeringUK, 'Pathways to success: Shaping foundation apprenticeships in engineering and technology' (Sept 2025).
[30] ibid

Against this backdrop, entry-level apprenticeships in engineering and technology have declined drastically in recent years, since the introduction of the Apprenticeship Levy in 2017. This has been particularly evident for level 2 apprenticeship starts in engineering and technology, which have decreased by over half (-52%) since 2017/18, with a particularly steep drop in manufacturing apprenticeship starts, which have fallen by 80% in just 5 years, from 11,670 in 2018/19 to 2,330 in 2023/24.[31] Meanwhile, the fall in level 2 apprenticeship starts does not appear to be explained by an increase in apprenticeship starts at level 3, as illustrated by the following graphs.

Fig 1: Engineering and technology-related apprenticeship starts at levels 2 and 3, by sector, between 2018/19 and 2023/24[32]

Industry has increasingly voiced concerns over challenges with the recruitment and retention of level 2 and 3 apprentices, with Make UK's Industrial Strategy Skills Commission finding that its members reported a "lack of support for providers to sustain this valuable training at levels 2 and 3" as one of their biggest challenges.[33] Meanwhile, Energy and Utilities Skills has forecast that of the 312,000 new people required by the energy, waste, and water industries by 2030, more than half (52%; 162,000 people) will initially be working at Regulated Qualifications Framework level 3 or below.[34] Across the priority sectors, Skills England has forecast that one third (34%) of the projected additional employment demand in priority occupations up to 2030 will require workers with a level 2 or 3 qualification.[35]

[31] EngineeringUK, Apprenticeships Pathways into Engineering (Nov 2024)
[32] EngineeringUK analysis of DfE's apprenticeships statistics; EngineeringUK, Apprenticeships Pathways into Engineering (Nov 2024)
[33] Make UK (2025), Industrial strategy skills commission report
[34] Energy & Utility Skills (2023), Workforce demand estimates – 2024 to 2030
[35] Skills England, 'Assessment of Priority Skills to 2030' (Aug 2025)

The introduction of foundation apprenticeships, a new qualification aligned with level 2 standards, represents a positive step towards incentivising uptake among young people. However, EngineeringUK's report 'Foundation apprenticeships: pathways to success' found that there is a risk that foundation apprenticeships will suffer from similar difficulties to current traineeships in struggling to reach high enough volumes. The target age-group is relatively narrow, and employers may see them as high-risk compared with plentiful alternatives. Therefore, they should not be viewed as direct replacements for Level 2 apprenticeships, but rather as an on-ramp to a full apprenticeship. We have welcomed the DfE's commitment to evaluate employer and provider engagement in foundation apprenticeships prior to rolling them out to additional sectors.

Policy context: Decline in provision of apprenticeships by SMEs in engineering and technology

A recent survey by the Institution of Engineering & Technology found that just one-third (33%) of engineering SMEs reported taking on an apprentice in the past year, compared to two-thirds (66%) of large employers.[36] Given that 43% of the engineering workforce is employed by SMEs, this disparity represents a significant loss of prospective talent for the sector.[37]

EngineeringUK analysis shows that since the introduction of the levy, the decline in engineering and technology apprenticeships has been driven entirely by a drop-off in SMEs' participation. This is illustrated by EngineeringUK analysis of DfE data, showing that between 2015/16 (prior to the levy's introduction) and 2022/23:[38]

- Apprenticeship starts at large employers (over 250 employees) **increased by 11%,** from 47,550 to 52,950.
- Starts at medium-sized employers (50-249 employees) **declined by 25%,** from 16,200 to 12,210.
- Starts at small and micro-employers (less than 50 employees) **declined by 32%,** from 41,810 to 28,250.

2.1 Pilot increased support for SMEs, including a new £3,000 grant for SMEs employing entry-level apprentices on standards key to the IS-8 growth sectors

Funding ask: £100m per annum

Policy context

As highlighted by several think tanks and sector bodies, SMEs continue to face practical barriers to engaging with apprenticeships. The Federation of Small Business, for example, has highlighted that most small and micro-businesses do not have HR teams, making it harder to find the time, and in some cases the knowledge, to get involved in activities such as the development of apprenticeship standards.[39] Moreover, many SMEs struggle to navigate the apprenticeship funding system and secure levy transfers. Although non-levy payers only contribute up to 5% of training costs, other hidden costs (e.g., wages, supervision, or off-the-job training) remain significant and have risen over the past year with increases to the apprentice minimum wage and other employment costs.[40]

In response to these challenges, government has set up various incentives exist to encourage SME engagement with apprenticeships, such as £1,000 grants for hiring care-experienced or 16-18-year-old

[36] IET (2025), 2025 UK Engineering and Technology Skills Survey
[37] EngineeringUK (2018), *State of Engineering Report*. (Archived but available on request)
[38] EngineeringUK analysis of DfE (2024), Apprenticeships and traineeships: Academic year 2022/23
[39] Federation of Small Business (2022), Scaling up skills
[40] Edge Foundation (2025), Apprenticeships Work

apprentices; fully funded training for under-22s; and National Insurance relief for under-25s. However, partly due to low awareness, these incentives have failed to avert the decline in apprenticeships provision by SMEs.

Additionally, government supports successful sector-based initiatives for SMEs in engineering via the Engineering Construction Training Board (ECITB) and construction via the Construction Industry Training Board (CITB). For example, the CITB's New Entrant Support Team provides construction SMEs with access to grants worth up to £2,500 per year per apprentice, plus an achievement grant of £3,500 (on successful completion of the apprenticeship). These grants supported 4,128 apprenticeship starts in the 2024/25 financial year, playing a vital role in a sector in which three-quarters of apprenticeship starts (76%) are at SMEs.[41]

Spending ask

To address the decline in SME engagement and ensure greater alignment between apprenticeships supply and employment demand, the Treasury should support the pilot of a new £3,000 grant per apprentice employed at SMEs on a specific list of standards deemed essential to the IS-8 growth sectors. The standards within scope of this grant should be determined in collaboration with Skills England, which would be responsible for identifying the occupations with the greatest workforce demand and of greatest importance to the IS-8 sectors. The grant should build on the success of the ECITB and CITB models, but operate as a distinct programme, meaning that employers would not be able to access multiple grants for each apprentice.

To support the objectives of the Youth Guarantee to reduce the number of young people not in employment, education or training, we recommend that this grant is rolled out initially with a focus on 16- to-21-year-old apprentices at SMEs, particularly those employed on entry-level (i.e. levels 2 and 3) standards. We recommend allocating **£100m per annum** budget, with a view to scaling up this budget and increasing its scope (i.e. age range and occupations) over time, subject to evaluation of its efficacy and uptake.

The scale and targeted nature of this grant reflect the recommendation of a recent Fabian Society report for an 'Apprenticeship Grant for Employers', which similarly proposed a £3,000 grant for SMEs taking on young apprentices and on standards identified as crucial for the IS-8 growth sectors.[42]

2.2 Fund local brokerage services to support SMEs to recruit and retain apprentices, such as Group Training Associations

Funding ask: £10m per annum

Policy context

As highlighted by EngineeringUK's inquiry into engineering apprenticeships chaired by Lord Willets and Lord Knight, the apprenticeship system is fragmented and complex for SMEs to navigate, with a lack of tailored support to help them engage with apprenticeships and skills training.[43] The current brokerage system (intermediaries that connect employers, particularly SMEs, with training providers and prospective apprentices) is patchy and fragmented, resulting in large regional cold spots without any

[41] Department for Education, Apprenticeships in England by industry characteristics, 2022/23; CITB, 2025, Specialist New Entrant Support Team Helps Over 4,000 Apprentices Join the Industry in 2024-25.
[42] Fabian Society (2025), Levying up: How to make the growth and skills levy work
[43] EngineeringUK (2023), Fit for the future report

services. This is despite polling by the Edge Foundation showing that two-thirds of SMEs would be more likely to hire an apprentice if they had access to tailored advice and support.[44]

Spending ask

In addition to a £3,000 grant to cover their direct costs, SMEs must be better supported to navigate and participate in the apprenticeship system through local brokerage services which should ensure a baseline provision across England. To deliver this, the government should introduce a nationally coordinated framework for brokerage services in the long-term, guaranteeing high-quality support to employers who need it.

In the interim, the government should fund the creation or expansion of brokerage services in cold spots, with a focus on supporting employers operating in the IS-8 growth sectors. Given the centrality of engineering skills to these sectors, we believe that an effective mechanism for doing this would be to fund the roll-out of more Group Training Associations (GTAs) and to continue funding existing GTAs as well as SME clusters. This funding should be distributed through local and combined authorities, which act as anchor institutions, and targeted at regions without existing brokerage services.

The Treasury should provide an initial investment of **£10m per annum** to combined and local authorities to work with local brokerage services, as part of a pilot programme, with a view to scaling this up over time. The scheme could adopt successful elements of Apprenticeship Training Agencies model, which were introduced in 2009 with a £7m government grant, and which acted as the legal employers of apprentices, placing them with host companies in sectors deemed essential for national growth.[45]

3. Invest in STEM teacher recruitment and retention

Target departments: Treasury, Department for Education

3.1 Sustain existing Initial Teacher Training (ITT) bursaries for STEM subjects, including key practical subjects such as Design and Technology, at 2024/25 levels

Funding ask: Cost neutral, as in line with current funding levels

Policy context

The DfE's commitment to publish a full delivery plan and success criteria for its pledge for 6,500 more teachers later this year, including plans to boost recruitment and retention, is welcome. However, these additional teachers need to be targeted at the subjects of greatest need and relevance to the IS-8 sectors, namely, STEM subjects.

STEM subjects have been persistently facing the greatest teacher shortages, with the DfE recording 1,200 STEM teacher vacancies in England in the 2024/25 academic year.[46] This shortage shows no sign of abating, with physics reaching just 31% of its recruitment target in 2024/25, chemistry at 62%, and computing at 37%.[47]

[44] Edge Foundation (2025), Agents of change: Supporting SMEs through apprenticeship brokerage services
[45] Flexi-job apprenticeship agencies, established in 2022 with a £7m grant, also emulated many elements of the original Apprenticeships Training Associations scheme.
[46] EngineeringUK analysis based on DfE (2025), School Workforce in England.
[47] DfE (2024), Initial Teacher Training Census

The proportion of teachers with a relevant post-A level qualification is concerningly low for many core STEM subjects, including Engineering (15.9%), Computing (39.9%), ICT (53.1%), and Physics (58.1%). These subjects have consistently been in the bottom 10 subjects for this measure. The 2023 Science Education Tracker discusses how shortages of specialist teachers have a wide-ranging impact on young people's learning of STEM subjects, affecting schools' ability to deliver STEM subject education and motivate students to learn sciences.[48]

Despite a promising uptake in ITT recruitment over the academic year to date, we are concerned by the DfE's decision to cut bursaries for ITT recruits in Design & Technology (from £26,000 to £20,000) for the 2026/27 academic year. Analysis for the National Foundation for Educational Research has estimated that these cuts, coupled with those to other subjects with bursary cuts, could lead to around 2,400 fewer trainees next year.[49] We have welcomed the commitment to retain the highest levels of ITT bursaries for maths and physics (£29,000), with both subjects facing critical shortages.

Spending ask

The DfE, with support from the Treasury, should commit to maintaining the highest ITT bursaries for key STEM subjects including physics and maths, and where possible to raising funding bands annually in line with inflation. This policy would be **cost neutral** as it is in line with current spending plans, though any additional funds required for inflation-linked increases could be drawn from funding saved through shortfalls against ITT recruitment targets.

In tandem, the DfE should also continue to pursue recruitment initiatives specifically aimed at career switchers. This includes the Engineers Teach Physics programme, run jointly by the DfE and the Institute of Physics, which was rolled out nationwide from the 2023/24 academic year to offer tailored Initial Teacher Training (ITT) and wider support for engineering and material science graduates.[50] The government should also continue to support and expand wider teacher recruitment campaigns, such as the 'Every Lesson Shapes a Life' and the 'Share Your Skills' campaigns.[51]

3.2 Invest in high-quality Continuing Professional Development (CPD) for STEM teachers

Funding ask: £29m per annum

Policy context

A critical and cost-effective element of the government's plans to increase teacher numbers by 6,500 over the Parliament will be to boost the retention of existing teachers as a means of reducing leakages from the talent pool. The importance of a focus on retention has been highlighted by the Public Accounts Committee in its recent report, among others.[52]

A longstanding shortage of STEM teachers is at risk of being exacerbated by the loss of experienced and specialist teachers from the workforce. For example, over a third (37%) of STEM teachers surveyed by EngineeringUK earlier this year stated that they either did not see themselves (18%) or did not know if they saw themselves (19%) still in the teaching profession in 5 years' time.[53]

[48] Royal Society and EngineeringUK, Science Education Tracker (April 2024)
[49] NFER (2025), NFER comments on DfE's announcements on teacher training bursaries and scholarships
[50] For more information, see: DfE, Offer an Engineers teach physics course
[51] These recommendations reflect those in the Institute of Physics report (2025), The physics teacher shortage and addressing it through the 3Rs: Retention, Recruitment and Retraining
[52] Public Accounts Committee (July 2025), Report on teacher recruitment and retention
[53] EngineeringUK (2025), School report: The challenge of STEM teacher recruitment and retention

Despite the increase to the core schools budget announced in the Spending Review 2025, school budgets remain squeezed with limited staff time and resources available for lesson planning. Meanwhile, hands-on practical work in GCSE science has declined drastically, with only 26% of GCSE students report doing hands-on practical work at least every fortnight, down from 44% in 2016.[54] Among science teachers and technicians, over half (58%) say insufficient time is the biggest barrier to practical science delivery, whilst 43% report equipment or resource issues.[55]

In light of these challenges, we are particularly concerned by the government's decision to proceed with cuts to ringfenced budgets for continuing professional development (CPD) programmes for STEM teachers, including the decision to cease funding the Stimulating Physics Network beyond March 2025. Indeed, ring-fenced funding for CPD for science teachers has been withdrawn entirely in the 2025/26 academic year (down from £8.4m in 2023/24), with future CPD funding to be drawn entirely from core school budgets, which remain highly stretched.[56]

STEM-specific CPD has been proven to boost retention of secondary science teachers. Indeed, analysis commissioned by Wellcome 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.[57]

While we are making the financial case of investing in CPD to provide rapid and massive cost savings through better teacher retention, this is just a secondary benefit. The primary purpose of CPD will be to help teachers develop and retain up-to-date subject knowledge, particularly for those without relevant subject qualifications above degree level, to deliver higher quality learning for young people and enhance progression in STEM subjects.

Spending ask

As part of a new 'Teacher Training Entitlement' programme (as pledged in Labour's General Election manifesto), the government should re-establish a ringfenced pot for STEM-specific CPD. As outlined above, this would be focused on increasing the quality of STEM teaching, teacher retention and student progression. Given their high levels of teacher workforce shortages and centrality to IS-8 sectors, any funding allocated to the Teacher Training Entitlement should go towards reinstating CPD for STEM subjects as a priority, including key practical subjects such as D&T.

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 £126m in recruitment and training costs.[58] The same report calls on the government to commit roughly **£29m per annum** for science CPD, which should be used as a baseline for a new Teacher Training Entitlement CPD fund for STEM teachers.

STEM Learning has estimated that every £1 invested in STEM CPD could generate up to £20 in wider economic benefit, including improved student outcomes and future earnings, in addition to savings to recruitment and training costs for new teachers.[59] Based on this model, a £29m investment in STEM CPD could result in up to £580m in growth across the UK economy over the long-term.

[54] EngineeringUK and Royal Society (2023), Science Education Tracker
[55] Royal Society of Chemistry (2025), The Science Teaching Survey 2025
[56] Parliamentary Question UIN 21283 (tabled 19 December 2024).
57 Wellcome Trust, 'Solving the STEM shortage: CPD improves science teacher retention' (2017)
58 Royal Society, Science education for a research and innovation economy (2022)
[59] STEM Learning (2025), Why cutting STEM CPD funding risks a crisis in education and industry

4. Provide sufficient funding to implement the changes recommended by the Curriculum and Assessment Review

Target department: Treasury, Department for Education

Policy context

The Independent Curriculum and Assessment Review, led by Professor Becky Francis, is due to publish its final report imminently, with a Schools White Paper to follow. The review is likely to lead to changes in the way young people are taught at schools, including the depth and breadth of the curriculum and the EBacc performance measures. In tandem, the government is also due to publish a Post-16 Skills White Paper, which is likely to recommend reforms to 16-19 provision, including the possible introduction of a new level 3 qualification.

Spending ask

Any modifications to teaching hours, materials, assessment, or focus will bring with them additional costs for schools and colleges. It is vital that these changes are fully funded in the Autumn Budget, with additional support for schools and colleges where necessary, including for high-quality CPD to enable teachers to adapt quickly to the new curriculum. The cost of this additional support is dependent on the recommendations of the review, as well as the content of the Schools and Post-16 white papers.