

Labour National Policy Forum Submission 2022 – EngineeringUK

Who we are

[EngineeringUK](#) is a not-for-profit organisation which works in partnership with the engineering community to inspire tomorrow's engineers. Our mission is to increase the number and diversity of young people choosing academic and vocational pathways into engineering. We aim to do this via programmes designed to excite young people about the variety and opportunity presented by a career in modern engineering. EngineeringUK want to grow the collective impact of work across the sector to help young people understand what engineering is, how to get into it, and be motivated and able to access the educational and training opportunities on the way.

We also undertake research and work with partners in the engineering sector to influence government thinking in relation to the educational pipeline into engineering. Our expertise is in understanding the systems, structures and funding that need to be in place to enable all young people to decide whether a career in engineering is for them.

What we would like to see

EngineeringUK want to see more young people choosing a career in engineering and technology and have access to the routes that will take them there. Engineers are vital to the UK developing the critical infrastructure required to drive innovation, the economy, and the net zero agenda. We therefore want to see policies that ensure we have the workforce with the right skills to deliver this in every region of the UK, and tackle the big challenges faced by the country now and in the future.

We want to see policies that:

- support all young people from a broad range of backgrounds to have excellent STEM teaching and a breadth of STEM curriculum choice.
- increase diversity in STEM professions and widen participation in engineering education and training.
- ensure joined-up thinking across government regarding STEM education and careers investment.
- ensure that the government builds up its understanding of what works best for STEM education whilst reflecting the UK's future workforce needs.

In line with these principles EngineeringUK want to see:

1. **government commit to providing £40m per year in additional funding for careers education**
2. **government to take a more strategic approach to workforce planning across departments.**
3. **government to develop a STEM Education Strategy**
4. **government to publish a refreshed Careers Strategy**
5. **careers hubs expanded across all secondary schools in England as soon as possible**
6. **careers content embedded into the STEM curriculum.**

This response

Our response will focus on question three of this consultation as this is where we have most insights. Other organisations will outline the wider opportunities, but we want to feed into how we fill the engineering vacancies that are created ensuring that the UK skills base keeps up with growing demand, driving growth and creating the good jobs of tomorrow.

The skill shortage is a significant issue facing the UK and we know that there is a skills gap across the engineering and technology sector. In 2018, we calculated the annual demand for 124,000 engineers and technicians with core engineering skills across the economy, alongside an additional requirement for 79,000 'related' roles requiring a mixed application of engineering knowledge and skill alongside other skill sets¹. These figures were calculated pre-pandemic and pre-brexit and we are concerned that these numbers will have increased. This urgently needs addressing if the UK is not only to compete economically with other countries but also achieve its own ambitions of becoming a leading science and engineering power.

Addressing this skills gap will help turbocharge regional development, deliver the country's net zero ambitions and provide the next government with the keys to unlock the potential of the next generation. Ensuring that young people have access to the skills that they need, and regional economies have access to those skilled young people is vital in terms of business growth and the creation of good jobs. We hope that Labour will engage with us when building out the policies that will deliver for the country ahead of the next general election.

3. How can government support the growth of business and the creation of good jobs in these sectors?

What are the issues

Levelling up skills and awareness

Engineers provide the ideas, innovations and solutions needed to meet the challenges faced by people and communities across the country. The UK needs a diverse and thriving engineering workforce right at the forefront of ground-breaking green solutions, from carbon capture to green transport, renewable energy to sustainable food. The UK has an ongoing shortage of engineers² yet there is a growing need to upgrade national infrastructure, innovation and green technologies. It is essential that all young people, whatever their background and wherever they live, have the chance to consider and access career opportunities in science and engineering - from Bolton to Brighton, Newcastle to Newquay.

However, our research has found that opportunity and understanding of pathways into engineering across the country isn't equal. For example, young people in London (aged 7 to 13) were two and a half times more likely than those in the East Midlands to say they knew what subjects they would need to become an engineer in the future (69%, compared to 27%). And when looking at the results for older age groups, young people (aged 13 to 19) in London were twice as likely to know what subjects or qualifications they needed to become an engineer than young people in the West Midlands. (60% compared to 30%)³. This is just an example of the findings in our Engineering Brand

¹ <https://www.engineeringuk.com/media/232298/engineering-uk-report-2020.pdf>

² <https://www.engineeringuk.com/media/232298/engineering-uk-report-2020.pdf>

³ <https://www.engineeringuk.com/media/286299/levelling-up-engineering-skills.pdf>

Monitor which revealed some quite stark and concerning differences across the country in relation to young people's knowledge and awareness of different educational and skills pathways available to them.

EngineeringUK thinks these findings raise a number of questions for policy makers to consider in this area and for a future government to address:

1. Places and people – What is the interplay between the place-based objectives for levelling up and the government's social mobility goals? What can and should the government do to address both?
2. Empowering local solutions - What role is envisaged for local government and regional government in levelling up skills, including combined authority mayors?
3. Widening participation – How will the levelling up white paper help to widen participation for young people from disadvantaged socio-economic backgrounds in vocational, academic and combined routes into science and engineering?
4. Increasing awareness of vocational pathways – What steps will the government take to help level up knowledge and awareness of vocational routes into science and engineering, including apprenticeships and T levels?
5. Careers provision - What steps are the government taking to increase investment in careers information, advice and guidance in schools and colleges as part of the drive to level up skills? Will the roll out of careers hubs be accelerated for example?
6. Cross-departmental working - How will government departments work together to ensure an integrated approach on areas like skills, careers provision, youth unemployment and future workforce planning?
7. Measuring success - How will the government measure success in levelling up skills outcomes for young people, including widening opportunities in STEM?

Diversity in the engineering pathway

It is no secret that the engineering sector has diversity issues. Only 16.5% of the engineering workforce are women. Although results vary by individual occupation and sector, in general we found that women were more likely to be in related – rather than core – engineering roles and working in industries outside of what is traditionally deemed to be 'engineering'.

Increasing the diversity of the engineering workforce is complex and there are many reasons why women, those from lower socio-economic backgrounds, different ethnic backgrounds and disabled people are under-represented in the sector. These reasons range from non-inclusive working and recruitment practices to disparities in attitudes to careers in engineering, differing levels of social and science capital and differences in educational attainment.

We know that for example, young people from lower socio-economic backgrounds generally perform less well in STEM subjects compared to young people from more affluent backgrounds. Our [briefing on social mobility](#) highlighted that 44% of pupils eligible for free school meals (FSM) achieve an A*-C grade GCSE in maths compared with 71% of non-FSM pupils; the respective figures for physics are 8% compared with 23%. In A level maths, 54% of those eligible for FSM in school achieve an A*-B grade, compared with 66% of those who were not eligible. Furthermore, just 1 in 10

engineering and technology first year undergraduates are those from the most disadvantaged backgrounds⁴.

On the other hand, students from a minority ethnic background are more likely to study STEM in school and at HE, though this is not necessarily the case for all ethnic minority groups. And while the proliferation of students from different ethnic backgrounds entering the UK higher education (HE) system is a positive trend, research shows there is a large difference in how they experience HE in terms of retention, outcomes and progression. For example, of those qualifying from first degree engineering and technology courses in 2018 to 2019, 83.5% of white students achieved a first or upper second-class degree, compared with 73.7% of students from minority ethnic backgrounds.⁵ Currently, 11.4% of the engineering workforce are from minority ethnic backgrounds. We hope that Labour will take a considered approach to this and develop supportive frameworks to back under-represented groups through their STEM education.

In addition to differing educational experiences, negative perceptions and gendered stereotypes of who can be an engineer are still very much in circulation and influence whether young people see engineering as being for them. Such preconceived attitudes towards engineering held by young people can act as a barrier to diversity, inclusion, and social mobility within the sector. As an organisation we therefore think it is important to look at the educational routes into engineering and what more needs to be done to ensure that young people feel engineering is 'for them'.

Covid Hangover

The Covid-19 pandemic significantly impacted all aspects of lives, from public health to the economy. Students of all ages had their education, work and careers experiences, and exams disrupted. Now, as we recover from the pandemic, the country faces the economic fallout from the virus, with the impact of this hitting young people particularly hard. Our research has found that for many young people the pandemic has raised concerns about what the future may hold and the opportunities that may be available to them. It has also affected the factors they now consider important in making career decisions. For example, many respondents to our 2020 Young People and Covid-19 survey were concerned that going to university, becoming an apprentice, and getting a job has become more difficult as a result of the pandemic. Given this – perhaps unsurprisingly – job security and availability were factors commonly reported by young people as being more important in their career decisions since the pandemic. We also found that for some young people, particularly girls/young women, the pandemic has raised the importance of having a job that would enable them to make a positive societal contribution or help people.⁶

We would like to see Labour utilise this interest in social justice, science and technology and strengthen pipelines into STEM jobs boosting the UK's recovery.

Technical education

We are concerned about the lack of awareness of technical education pathways amongst young people, teachers and their parents or carers. We support the rollout of T-levels across the sector, but we have concerns about how effectively T-levels are reaching young people. The findings in our Levelling Up Engineering Skills 2022⁷ briefing suggest that young people's knowledge of T levels

⁴ <https://www.engineeringuk.com/media/1762/social-mobility-in-engineering.pdf>

⁵ <https://www.engineeringuk.com/media/232298/engineering-uk-report-2020.pdf>

⁶ <https://www.engineeringuk.com/media/232303/young-people-and-covid-19.pdf>

⁷ <https://www.engineeringuk.com/media/286299/levelling-up-engineering-skills.pdf>

varies widely by region, with young people (aged 11-19) in London most likely to say they know what they are (49%) and those in Yorkshire and the Humber least likely (29%). In the West Midlands, levels of awareness were also low with less than a third of young people (30%) saying they knew what T levels are. Knowledge of T levels among young people in the North West and North East was similar (43% and 42%). Our findings suggest there is some way to go in levelling up awareness of T levels in the coming months and years. Our evidence also raises the question of why awareness of T levels among young people is not more evenly spread across regions, with knowledge being greatest in London.

Realising the potential of apprenticeships will be essential for any government to level up skills across regions and sectors. Recent findings from EngineeringUK's Levelling Up Engineering Skills report showing that the majority of young people surveyed did not know about the apprenticeship options open to them is a cause for concern. Knowledge of apprenticeship options is highest in London (63%) and lowest in Yorkshire and the Humber (34%), with the South-West (35%) and the West Midlands and East Midlands not faring much better (36% and 37%).

These findings are another reminder of the importance of high-quality and impartial careers information, advice and guidance for all young people. This is pertinent given that apprenticeship start figures have fallen by 48% over the last five years with a drop of 43% in engineering related apprenticeships⁸. Intermediate level apprenticeships have been hit the hardest in the engineering sector with a fall of 69% since 2015/16, with advanced level course starts decreasing by 33%⁹. This is deeply concerning as it indicates that the current approach to vocational training is missing many talented young people who may have previously taken an apprenticeship course.¹⁰

What EngineeringUK wants to see happen

1. Workforce planning

The creation of jobs is important but the next government must ensure that these jobs are targeted in the areas they are most needed and supported with the skills for success. To achieve this, we need a more strategic approach to workforce planning across government. The UK must begin to view human resource as a national strategic asset that can be supported by government departments that consider skills and workforce challenges within a coherent planning system.

The UK needs to develop a system that is able to identify the emerging STEM skills needs across a wide range of sub-sectors so that the education and training system can respond in a timely manner. The Future Skills Unit has the potential to provide this if it is developed using the right principles and the rollout of Local Skills Improvement Plans (LSIPs) can also make a positive contribution. We want to see LSIPs give consideration to the development of skills that will support net zero and sustainable development. We would like to see Labour take the principles outlined in this response and commit to developing an effective system that delivers for everybody when in government.

⁸ <https://explore-education-statistics.service.gov.uk/find-statistics/apprenticeships-and-traineeships> Analysis performed by EngineeringUK, details available upon request.

⁹ <https://explore-education-statistics.service.gov.uk/find-statistics/apprenticeships-and-traineeships> Analysis performed by EngineeringUK, details available upon request.

¹⁰ <https://explore-education-statistics.service.gov.uk/find-statistics/apprenticeships-and-traineeships> Analysis performed by EngineeringUK, details available upon request.

2. STEM Education Strategy

As previously raised, the pandemic has exacerbated inequalities in school-age education, hugely disrupted further and higher education, and risks reducing the diversity of young people going into engineering as impacted students filter into vocational and higher education. The next government must have a plan to overcome the covid crash and meet the nation's long-term engineering and technical skills needs. A long-term STEM education strategy, informed by strategic workforce planning and best practice, must be part of this plan and target key challenges in STEM skills including increased pupil attainment and progression in STEM subjects, high-quality STEM careers advice and guidance, teacher recruitment and retention and targeted support for delivery of technical qualifications.

The new STEM education strategy must deliver the following:

- **a guarantee that all pupils receive high quality, up-to-date STEM careers provision**
- **boost STEM teacher recruitment so that pupils in all schools are taught by subject specialists**
- **raise and maintain teaching standards by providing ringfenced resources for STEM subject specific Continuing Professional Development for primary and secondary teachers**
- **accelerate the expansion of technical education provision and higher technical qualifications**
- **promote high-quality engineering apprenticeship opportunities to all young people with a focus on addressing under-representation.**

We are calling on Labour to support this recommendation and make a STEM education strategy a key part of their next manifesto. In addition, key government departments such as the Department for Transport and BEIS should also invest, and encourage private sector investment, in the sector to drive inclusive and well-targeted STEM engagement programmes for young people, including workplace experience opportunities.

3. Careers provision in schools and colleges

It is not enough to have educational and skills pathways into STEM careers, young people also need to know about them.

Supporting young people in their careers choices ensures that young people can take up the employment opportunities on offer and secure the future workforce needed for net zero, economic growth and regional development. It is important that careers advice and guidance is based on good-quality, up-to-date information on the labour market, helping young people to benefit from new and emerging job opportunities in sectors such as engineering and technology.

There is a clear link between knowledge of engineering and the extent to which young people would consider a career in the profession. Young people who know a lot about engineering are far more likely to consider it as a possible job, highlighting the importance of improving engineering careers provision among young people. EngineeringUK's 'Our careers our future' report¹¹ for example found that 82% of young people aged 11 to 19 who said they knew 'quite a lot' or 'a lot' about engineering would consider a career in the sector (compared to just 40% of 11 to 19 year olds who reported not knowing a lot about engineering).

¹¹ [our-careers-our-future-briefing.pdf \(engineeringuk.com\)](#)

However, recent EngineeringUK research¹² has highlighted that careers provision in schools is underfunded, limiting what schools can offer to young people.

In order to guarantee all pupils receive high quality, up-to-date STEM careers provision, a Labour skills strategy must invest more in careers provision in schools. We recommend an investment of about £30 million annually, an average of £8k per secondary school or college, to ensure that they are better resourced to support all young people with their career's choices. In addition to this general funding, we ask that government invests an additional £10 million annually for a 'STEM Diversity Fund' for careers provision activities. Furthermore, we want government to come forward with a refreshed Careers Strategy, expand careers hubs to cover all secondary schools in England as soon as possible, and embed careers content within the STEM curriculum.

¹² <https://www.engineeringuk.com/media/232356/our-careers-our-future-briefing.pdf>