# EPC Representative Consultation Response to the Education Select Committee Future of Post-16 Qualifications Inquiry, January 2022

The EPC represents the academic engineers in the UK, with 85 university Engineering faculties as members comprising over 7,500 academic staff. Our primary purpose is to provide an influential voice and authoritative conduit through which Engineering departments' interests can be represented to key audiences such as funders, influencers, employers, professional bodies and Government. All branches of Engineering are represented within the EPC's membership.

We are submitting evidence because we support the continuation of BTEC qualifications alongside Advanced Levels (A level), Technical Levels (T levels), Business and Technology Education Council Nationals (BTECs) and apprenticeships as these offer high quality and highly regarded routes into Engineering.

## The strengths and weaknesses of the current system of post-16 qualifications, with reference to A Levels, T Levels, BTECs and apprenticeships, in preparing young people for work or further and higher education.

A levels offer a traditional pathway into Engineering, with entry into Engineering higher education usually secured through good attainment in A level Maths and often, Physics. BTECs and Level 3 vocational qualifications offer vital alternative pathways into further study and the Engineering profession. BTECs are particularly beneficial for young people who would not be suited to more academic routes. Those with lower prior attainment in GCSE Maths and Physics particularly benefit, because they can still progress to a successful career in Engineering without taking a traditional academic pathway through A levels and degrees. In many areas of the UK, schools are not able to find or afford speciality mathematics teachers. Thus, BTECs may be the only access route for many students into Engineering.

The BTEC route is widely recognised, respected and trusted by Engineering employers offering good salary outcomes for a significant and growing number of pupils. Over 24,000 pupils each year study a BTEC in Engineering.

BTECs are highly regarded by providers. One eighth of Engineering graduates hold a BTEC in Engineering.[i] Many of these will be students who may otherwise have not taken Engineering at degree level. Of the roughly 5,300 first-year undergraduates in 2019/20 in Mechanical Engineering alone, 25% had completed an Engineering BTEC alongside a mixture of A levels.[ii] The vast majority of BTEC-qualified undergraduates complete their studies and most graduate with at least a 2:1.[iii] Moreover, a higher percentage of BTEC engineers five years after graduation remain in sustained employment than those with four As or more at A level, at 82.6% and 72.5% respectively (LEO, 2020).[iv]

BTECs are highly valued by employers. Research conducted by Ofqual shows that employers rate A levels and applied general qualifications similarly when asked whether these qualifications prepare pupils for work.

BTECs are highly valued by learners. For pupils, more students expressed a belief that BTECs are better preparation for work than A levels, by 47% to 40% respectively.

BTEC engineers are highly valuable to the wider industry. The Engineering sector is one of the largest contributors to UK economic growth, generating 21.4% of UK turnover in 2018.[v]

Students who have vocational and technical qualifications and who progress on to higher education are more likely than their peers to have come from lower socioeconomic backgrounds[vi]. UCAS data on the participation of 18-year-olds in HE in 2020 shows that 26% of those entering from POLAR quintile 1 (the lowest HE participation areas) held a BTEC qualification. This compares to less than 10% of those from POLAR quintile 5 (the highest participation areas). The proportion of Black students entering HE with BTECs alone is nearly twice that of White students. And a third of all Black 18-year-old students enter HE with either BTECs/A level BTECs compared to 21% of White students. [vii]

BTECs support social mobility. While there are fewer BTEC engineers in higher education, these students benefit hugely from their studies, suggesting a higher level of 'value added' for BTEC students studying Engineering compared to their A-Level peers. Five years after graduation, Engineering students at all levels of prior attainment earn higher wages than the median earnings for all subjects. Moreover, although high-attaining students (those with four A grades or more) enjoy a premium of £1,100 increase in median wages (LEO, 2020), engineers with BTECs earn £8,100 more than the average wage for students with BTECs five years after graduation.[viii]

<u>The benefits and challenges the Government's proposed changes to Level 3 qualifications would bring, with reference to any implications for BTECs and routes into apprenticeships.</u>

While we recognise the desire for simplicity represented by the Government's proposed reform to reduce post-16 progression to just three pathways – A levels, T Levels, and apprenticeships – it does not replicate the BTEC-specific offer; courses which are neither neatly academic nor vocational. We support all three routes into Engineering, but there will also be groups that will not be best suited to a singularly academic nor technical pathway, including those who would otherwise have chosen to study BTECs.

T levels alone do not meet the needs of many of the learners who currently take BTECs. Following the alternative, technical route into narrow, specialised occupations is unlikely to appeal to the majority of pupils who currently choose applied general qualifications in Engineering and Applied Science. For example, for students who have yet to choose a specific occupational specialism but are interested in an area such as Engineering, qualifications that provide a breadth of knowledge at level 3 are the most suitable choice.

Early evidence suggests that the vacuum will not be replaced by an uptake in the number of young people taking T Levels.[ix] With potentially fewer numbers of young people taking vocational qualifications at level 3, the number of engineers at levels 4 and 5 will be impacted as level 3 BTECs offer logical routes to qualifications such as Higher National Certificates/Diplomas.

Therefore, the removal of funding for BTEC courses will specifically prevent many disadvantaged young people from progressing to university in the future. Based on 2017 HESA data, this will disproportionally affect those from BME backgrounds, the lower 4 socio-economic groups (as defined by parental/career occupation) and those from areas of low participation in higher education. Nearly four times the proportion of men and an even higher proportion of women with SEN achieve a degree via BTEC than with just A Levels and double the proportion of those eligible for Free School Meals. [x]

A Wonkhe survey of NEON members in late 2020 revealed none of the respondents was confident that T-levels would provide a route to higher education, either alone or with A levels, to fill the gap left by BTECs.[xi] And, assuming it will not be possible to combine A and T levels, a rigid divide will be created at age 16 which for many will last a lifetime. Students who might otherwise have taken a mix of qualifications could be forced to follow the B-stream or choose just A levels; an unintended consequence of which will be higher rates of academic failure.

This will narrow the pathways into Engineering and consequently reduce the options for students to progress into a career in Engineering which, ultimately, will reduce both the number and diversity of those entering the Engineering profession. In addition, students undertaking higher education first degrees through the BTEC route tend to be older and more likely to undertake part-time study compared to those who follow the A level route into higher education. UCAS data for 2019 entry shows that around one in six mature students (i.e. 21 and over) held BTEC qualifications only.

A reduction in the number of young people progressing into the Engineering profession, and the impact on mature students retraining into Engineering, will further exacerbate existing skills gaps and shortages across the UK economy. This will only add to the significant problems for Engineering and technology industries, which struggle already to recruit the number of engineers needed. [xii] Coupled with additional costs for recruitment, retention and costs incurred through persistent vacancies this is likely to have implications for the economy and on Government's wider policy ambitions.

Equitable access to T levels is a problem. Early evidence suggests that the provision of T Levels nationwide will be uneven, with some areas having adequate provision and others none.[xiii] The regional availability variation of Engineering and Manufacturing T levels will depend largely on the availability of work placements, the number of employers on board, and the costs and difficulties associated in delivering 45 days of work experience. The number of work placements that will need to be provided by employers is not realistic.[xiv]

Finally, the speed and scale of technical education reforms is concerning. Both T levels and the higher technical qualifications to which they will lead are untried and untested. Just three T levels started last year, seven more will begin this year and by 2023 there will be 24.[xv] For the time being, it is therefore mere conjecture that T levels are a 'prestigious technical alternative to A Levels'. "How can we know … only a small minority have been going for a year, no candidates have yet got any of these qualifications and been able to give a view on them, and there has been no evaluation whatever?" Lord Adonis.[xvi]

<u>The extent to which the Government's review of level 3 qualifications will impact disadvantaged groups, students from minority ethnic backgrounds, students known to the care system, and students with special educational needs or disabilities…</u>

The abolition of BTEC courses will specifically prevent many disadvantaged young people from progressing to higher education in the future. Based on 2017 HESA data, this will disproportionally affect those from BME backgrounds, the lower 4 socio-economic groups (as defined by parental/career occupation) and those from areas of low participation in higher education. Nearly four times the proportion of men and an even higher proportion of women with SEN achieve a degree via BTEC than with A Levels alone[xvii] and double the proportion of those eligible for Free School Meals.

Access to high-quality STEM education and opportunities to study A levels that lead to further study in Engineering are often restrictive for those from lower socioeconomic backgrounds. A recent

report by the APPG on Diversity and Inclusion in STEM Education established a connection between childhood disadvantage and access to triple science, and therefore opportunities to study science at A level.

We remain concerned that there will be significant regional variation in those who will be able to take T Levels, with limited options available in some areas of the country. Those from rural and coastal areas of the country typically have fewer opportunities and options available to them, particularly for routes into Engineering. This will also disadvantage those from poorer communities, those without access to good and cheap transport and those without personal or family connections with employers. These are, of course, exactly the groups who are over-represented among BTEC students currently.

It follows, then, that students from higher socioeconomic backgrounds and in areas where there is greater choice available will be the main beneficiaries of these reforms. Students who have the necessary higher prior attainment to progress to A levels or T Levels will also benefit from the changes due to a reduction in the competition in the jobs market. This all runs counter to the government's levelling up agenda, with some areas benefiting from a greater variety of courses (particularly those affluent areas with many local employers), and others being limited to few options. What of the social mobility offered by BTECs?

This results in significant challenges to improving the diversity of the Engineering profession and addressing skills shortages. This is of particular concern given the demand for skills that will arise as a result of emerging technologies, particularly those linked to Net Zero.

<u>…and what measures might be put in place to mitigate any negative impacts.</u>

The government should ensure that new pathways into Engineering are successful first, before removing proven valuable routes. Funding for BTECs and other level 3 vocational Engineering qualifications should only be removed once other, new, routes into the Engineering profession have proved successful. This requires the government to reconsider an arbitrary date of 2024 for the removal of qualifications at level 3.

Funding for BTECs and other level 3 vocational Engineering qualifications should be removed only once the reforms can be shown to include options which would not disproportionately affect young people from lower socioeconomic backgrounds, BAME students and those with a disability or SEN, and which can demonstrate equal or better improved outcomes for these students.

The government must ensure that accessibility into T Levels is implemented on an equitable basis nationwide. In particular, the requirement for 315 hours of work experience is challenging in many parts of the country and should be reconsidered with a view to exploring more creative and flexible ways of achieving the same degree of work-related learning. By way of a single example, T levels might be offered provisionally on the condition of subsequently completing a placement or suitable period in a work setting.

<u>The benefits and disadvantages of introducing a baccalaureate system in post-16 education that allows students to take a variety of subjects, including both academic and vocational options.</u>

Education in England narrows more and at a younger age than in almost any other developed nation. By age 16 students typically specialise in arts or STEM subjects or take directly vocational routes and, consequently, their choices later in life are also either narrowed or made harder to achieve.

By age 18, most students will be unqualified to enter a degree or career in a STEM discipline; most STEM students will have ceased to develop formally the communication and critical analysis skills that arts subject might have provided; and unless they have followed those routes explicitly at the cost of other areas, students will have foregone work-related learning, foreign languages or practical work that would prepare them for the demand of the labour market.

This means that poorly informed or advised choices at a young age – or even good choices based on priorities and ambitions that change – leave learners unable to access educational and professional pathways. While reskilling is possible later in life, it almost invariably involves greater investment, risks and sacrifices on the part of the individual and/or public funding.

It is hard to predict the future of the labour market, but it is always a safe bet that employees with adaptable skills and knowledge will be better prepared and of more value to employers than those with narrower competencies. In the field of Engineering, for instance, employers have consistently called for broader employability skills and experience among applicants. [xviii]

This suggests that any career-specific training that may be lost by offering a broader education would be more than counterbalanced by breadth and flexibility. Career specific education is also more likely than broader skills to lose its currency or even become obsolete in the face of technological development or societal change.

For those who have not mapped out with certainty their entire career by age 16 or even for those who have and want to build in long-term adaptability, it would be preferable to have options for broader and more mixed learning. A baccalaureate that facilitates a mix of academic and vocational study, STEM, social science and humanities subjects, languages and enterprise skills would leave options open while at the same time providing a good foundation for study or entry into the workplace.

We would support this and many university Engineering departments are already seeking to diversify their intake by accepting more varied qualifications. This would allow them to do so with less risk of academic failure.

The benefits and disadvantages of a post-qualifications admission system.

The EPC produced, in consultation with our members, an extensive analysis of the benefits and disadvantages of a post-qualifications admissions system in relation to Engineering in response to the DfE's consultation in May 2021. The full response is available at EPC-DFE-Post-qualification-admissions-in-higher-education-response.pdf. To summarise that response, our comparison of a PQA or PQO model with the current admissions system did not support any such radical changes as they would present greater risks than any potential benefits.

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[i] Vocational and Technical Qualifications Landscape tool (data retrieved from), Ofqual Analytics, 2021
[ii] Submission to the APPG Youth Employment call for evidence, Royal Academy of Engingeering Education and Skills Group, 2021
[iii] Educational choices at 16-19 and university outcomes, Nuffield Foundation. 2022
[iv] Maximising the opportunities for social mobility from studying Engineering, Engineering Professors' Council, 2021
[v] EngineeringUK Report, Engineering UK, 2019
[vi] BTECs, higher education and labour market outcomes using the Longitudinal Education Outcome (LEO) dataset, Centre for Vocational Educational Research, 2019
[vii] Will abolishing BTECs mean reversing widening access to higher education? National Education Opportunities Network, 2021.

[viii] Maximising the opportunities for social mobility from studying Engineering, Engineering Professors' Council, 2021
[ix] Spotlight on Workforce Skills, Pearson, 2021
[x] BTECs, higher education and labour market outcomes using the Longitudinal Education Outcome (LEO) dataset, Centre for Vocational Educational Research, 2019
[xi] Defunding BTECs could set the widening access agenda back by decades, Wonkhe, 2021
[xii] Talent 2050: Skills and Education for the Future of Engineering, NCUB, 2018.
[xiii] T Level extended work placement research, Employer and college and training provider survey findings and case studies. AELP 2018
5 Vocation, Vocation, Vocation, The role of vocational routes into higher education, Social Market Foundation. 2018
[xiv] T levels: Placements unlikely in 2021, say employers. TES, April 2021.
[xv] A new educational divide and a gamble on the future of other people's children. Dean Machin, October 2021
[xvi] Skills and Post-16 Education Bill [HL] - Hansard - UK Parliament, October 2021
[xvii] CVER research - BTECs, higher education and labour market outcomes using the Longitudinal Education Outcome (LEO) dataset (Oct 2019)
[xviii] IET Skills and Demand in Industry 2021 Survey, Institution of Engineering & Technology, 2021

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This submission includes evidence from the Royal Academy of Engineering's Education and Skills Group's submission to the APPG Youth Employment call for evidence dated December 2021 to which the EPC contributed. We recommend the Education Select Committee cross references with this call for evidence as there is likely to be significant overlap.