Key messages:

1. A wider curriculum to 18 is welcome, given the extent to which the UK – and England especially, is an outlier among developed countries in both the age and extent that learning tends to become specialised and narrow. Even though Engineering is often thought of as being specialist with a high need for Maths and Physics, it benefits from breadth at least as much as other disciplines and more than many. Good engineers are mathematicians, physicists, designers, business people, ethicists, psychologists and much else besides. Universities leading the way for change in the HE engineering sector in 2019 identified the need for greater interdisciplinarity as a key lever for readiness to address modern workplace challenges and global issues[i]. However, the opportunities and risks of moving away from the UK's well-developed model need to be fully understood.

2. The continued division of academic and technical routes (aka the divide between ABS and ABS occupational) perpetuates the longstanding binary academic and technical divide. This does nothing to create parity of progression, but rather reasserts disparity.

    a. The distinction is unnecessary, why not simply let students choose minors, majors and double majors, some of which may be aligned to IfATE standards and some of which may be focused more on transferable skills and attributes?
    b. The focus should be on establishing the benefits of a unified pathway – albeit with different mixes of more academic and occupational elements –, to key stakeholders, principally the students.

3. Reforms may particularly disadvantage those providers who support the very students this proposal has at its heart. A revolutionary approach to the entire 16-19 curriculum (and beyond) creates instability and presents significant risk to a generation (or more) who will experience what is, in effect, an experimental education. That does not mean that innovation is not possible or welcome, but that it should advance slowly and incrementally. We must build a system with disadvantaged students and students with SEND in mind.

    a. There is little evidence that the proposed ABS will close the gap for SEND and disadvantaged pupils.
    b. Continual changes to accommodate non-A level students has created an uneven policy environment for providers (at all levels) that attract and support non-traditional learners. A perpetual cycle of learning and relearning to accommodate non-traditional pathways represents a tax on those responding most rapidly to change.
    c. This is compounded by punitive OfS HE metrics which discourage risk-taking and places responsibility for change-making on 'recruiting' universities.
    d. The current conflation of levels 2 and 3 is unclear and not well considered; this will disproportionately affect disadvantaged and SEND pupils.
    e. Government should consider an inclusive Universal Design for Learning approach which understands and pre-empts the needs of all pupils from the outset.
    f. Good change management might include an "assess, plan, do, review" approach including small pilots before scaling up. Continual reassessment is required to avoid the assumption that implementation of a new system will solve all problems.

g. The culture change needed at levels 2 and 4+ is understated in the proposals. Students and their advisers may find it difficult to navigate between divisions, specialisms and generalisations.

4. Resolving the teacher crisis is a critical dependency to the success of this initiative. There must be progress on teacher recruitment and retention before ABS can be introduced.

    a. More teaching time requires more teachers. However, there are well documented teacher recruitment and retention problems, especially in Maths and Physics.
    b. The introduction og a set of radical changes will not merely require a teaching workforce at full normal capacity, but a workforce with some in-built superfluity to manage change.
    c. EPC research shows that a future pipeline imperative, the students' own interests, and collaboration with university careers services are all key to encouraging graduates to become Physics teachers.
    d. Regional disparities in subject availability are problematic in Engineering, where single Science GCSEs and Maths / Further Maths A level are not consistently available.
    e. The proposed development timetable must be properly supported by a flexible and longer-term implementation timetable. There must be regular milestones for progress and if those milestones are not met, ABS introduction must be postponed accordingly. Any government that wishes to introduce such radical curriculum change must first be held to account to be on track to provide the teaching workforce to deliver such changes effectively.

5. To limit and curtail qualification choice at level 3 requires a radical overhaul of the existing content and structure of current A levels and T levels. The DfE must satisfy itself and the sector that other level 3 qualifications, such as BTECs, do not serve an important purpose which will be lost in implementation of the ABS.

    a. In Engineering, BTECs provide a stable, tested pathway to employment, particularly for disadvantaged learners. EPC research has shown that they are an effective driver of social mobility.[ii]
    b. Inconsistency of content and approach between A level exam boards has evolved an industry of provider decision-making re: 16-19 A level (and other) provision. The impact of an unknown landscape on pupil opportunity and success must be appraised.
    c. The challenges presented by the mutual exclusivity of knowledge within A level exam boards presents difficulties with interdisciplinarity. Addressing this is particularly important given the proposed "unique" qualification for any given subject.
    d. Technical routes are still less well understood by most stakeholders (learners, educators, shools, colleges, parents, universities and employers) than traditional pathways. An understanding of the significant problems that T levels are encountering, including capacity in the system for industry placements (particularly at a regional level), is essential.
    e. Employer-led Apprenticeship and T level development has led to narrow Standards representing a small number of large employers (with SME interests largely sidelined). We urge caution on overdependency on employers specifying what they want/need;their tendency will be to consider short term labour market undersupply and to act in their own interests. Meeting employers' short-term interests may often be a cheaper or quicker alternative for them than investment in technology and/or more

efficient processes. However, by the time Standards start to deliver a workforce trained to the supposed needs, the investment may well have been necessitated and the labour shortfalls addressed. It is critical to be into the development of new qualifications and Standards voices that will represent the interests of learners over the longer term – their career lifetime, for which they need to acquire flexible and resilient skills that can develop over as circumstances and the labour market change.

f. The proposed circa 70-90% and 50% coverage for each A level subject (majors and minors, respectively) and presumably reduced T level content, will impact on readiness for HE. A forensic subject-by-subject analysis is essential for all stakeholders to understand the standards in each. This cannot be left to HE to work out post-admission.

6. A future-proof education system must recognise the importance of personal attributes that ensure our next generation is work ready (e.g., entrepreneurial, inquisitive, collaborative and ethical). 21st century 16-19 education should not be based only on knowledge and skills.

    a. There is ambiguity within the proposals around the distinction between skills and knowledge, and the value of this.
    b. A broader curriculum that focusses less on imparting knowledge and more on developing attributes might be delivered without a significant demand for more "teachers".
    c. There is an opportunity to learn from Engineering's development and regular review of AHEP, which has recently considered in detail the role and emphasis on skills and knowledge required to be a successful Engineer.

7. We welcome greater Engineering's presence in the curriculum, but urge that government works with HE providers and subject experts to ensure that a single subject approach is fit for purpose and supports progression.

    a. This includes supporting opportunities for new subjects to plug existing skills gaps.
    b. The examples provided in the consultation appear to label engineering as an occupational route (through double majors). If occupational and academic subjects are mutually exclusive, how might the pathway vary between Engineering disciplines?
    c. Current IfATE Engineering standards should be reviewed as some are seen as too narrow. This arises because the development of a standard has been led by a small number of employers who base it on their experience of needs. Once a Standard has been established, competing Standards cannot be recognised. However, if the Standard does not reflect the wider needs of employers and the apprentices' need for skills, knowledge and behaviours, then the Standard blocks the space for a more widely appropriate standard. This should be reviewed to allow greater flexibility.

8. A broader base and higher quantity of Maths at level 3 is welcomed in Engineering but we have reservations about making it compulsory. The term 'Maths' is off-putting to many (and is highly abstract), but *functional* numerical and data literacy is a skill for life and work. Similarly, English as an academic subject of study will encourage disengagement among some learners, but *functional* English as a tool for communication, rhetoric, developing empathy and creativity is valuable and may support an interdisciplinary development of skills. The devil will be in the detail, which is not yet available.

a. Clarity and transparency are needed around who the Maths and English minors are for and what purpose they serve.
b. What is meant by English and Maths, and their labels, should be fully considered. A broader base of *functional* and *contextualised* applied English and Maths for life is very different to a higher quantity of theoretical, abstract maths in preparation for, say, Engineering, Economics, or Science. Do we mean statistics, data literacy, digital skills (notable by their absence)?
c. HE should be invited to help design Maths minors courses, in the same way that employers have for T levels.
d. How compulsory English and Maths can for all work for everyone when some subjects are not suited to everyone warrants further consideration. Compulsory study doesn't widen the appeal, especially for those with strong passions or competencies elsewhere. It may also create a obstacle for progression for certain students who may even excel in all other areas.

9. There is a valuable opportunity here to decompartmentalise the curriculum to harness the golden threads of education and join up all components within a unified approach. As currently proposed, the ABS framework does not appear to be aiming to realise that opportunity.

    a. EEP (including study skills) is currently commonly operationalised as an add-on, which is not assessed and is undervalued by learners or educators. EEP should be embedded in learning, instead of – or as well as – being a separate element.
    b. There is evidence that reflection and critical skills for metacognition are essential to good pedagogy and learning. A greater focus on independence and independent thinking, including self-led learning can be regarded on a spectrum or as progression (noting that there are inclusivity considerations here).
    c. CEIAG should be *continuous* (starting from an early level and ongoing throughout every educational stage) and *contiguous* (building incrementally on previous interventions and learning).
    d. Employability should focus on wide and reflective careers and skills education rather than repetitive "meet an employer" activities. These are useful, but need to be conducted within a metacognitive framework of understanding, otherwise for most students, most encounters with employers feel tangential if they are not specific to an idea they already hold about what they might want to consider doing. Ideally, all employer engagement should feel pertinent to all students because they are able to reflect on common features of employability rather than on the specifics of a potentially irrelevant job.

10. There is a crucial need and opportunity to look radically at the way we view and implement assessment at level 3. Flexible and innovative assessment sits pedagogically well within a modular structure.

    a. More teaching time, more subjects and greater summative exam load places unrealistic pressure on learners. This will come at a cost to the wellbeing of some young people, particularly the disadvantaged and SEND pupils who are supposed to be helped most.
    b. Exams are not the only measure and, arguably, they are not the best. They correspond poorly to most activities in careers and support students who can retain knowledge for the duration of the exam, rather than exhibiting aptitude and understanding over time. A

diverse model of assessment that still includes exams, but also other forms of assessment might better reflect learning that is useful beyond the classroom.

c. If we are prepared to countenance a radical shake-up of structure, curriculum and content, we should be willing to explore more innovative (or at least less antiquated) forms of assessment: continual assessment, practicals, project work, teamwork, self-assessment, peer assessment, average of multiple lower stakes exams, etc should all be considered credible approaches, especially in the light of both the challenges and opportunities of AI in assessment.

11. A single grade for the ABS would be highly reductive and unhelpful. It would risk raising the stakes without adding value.

    a. The heuristic nature of an overall score is not in the interests of pupils; more detailed information will ensure a better match in employment or study progression.
    b. Grading is not necessarily an either/or approach; there may be scope for 'achieving ABS' (like high school graduation in the US or passing the Abitur in Germany), accompanied by a more detailed report. Individually graded elements and an overall summary, or GPA should be provided.
    c. A breakdown of module-based scores would allow for students who have a lower overall score to demonstrate module specific speciality when discussing employment opportunities and further employment.
    d. Level 2 and 3 information is helpful to support transition, recruitment and selection (data suggests GCSEs are a better indicator of HE performance than A levels).
    e. How grading will be presented to universities (i.e. transcript based) requires further consideration.
    f. A compulsory pass for compulsory minors may narrow opportunities rather than increase them; it may be worth exploring arrangements for 'compensation' and 'condonement' arrangements in terms of overall achievement.
    g. The increased focus on providing grading that is consistent across subjects is welcome. However there needs to be greater clarity about how the DFE will achieve this given current inconsistencies in grading.

12. Consultation thinking around pathways to HE is notably under-developed. University involvement in the formation of the ABS is essential. The sector must prepare for an HE system which can successfully build on and accommodate the new schema. Universities will require robust content, skills and attributes information on all components of the ABS and evidence of its transferability on which to base their autonomous decision-making about admissions and curriculum development to accommodate the learners of the future.

    a. There are lessons to be learnt from T levels design and implementation.
    b. T levels were not originally conceived as a basis for HE progression; and university understanding and acceptance reflect this (as evidenced by entry requirements to Engineering which sometime cite the unlikely combination of both T level and A level Maths). Occupational majors should be conceived as a potential route to HE from the outset. Most university courses are – to a greater or lesser extent – largely vocational or directly applicable to the working world. With a few exceptions, it is usually a false and damaging dichotomy to design pathways that are explicitly academic or occupational.

c. To help universities understand Maths in T levels as suitable for HE Engineering, the EPC has undertaken a research project to unpick and better communicate to higher education institutions what maths is contained within the T level and to help admissions staff understand the T level as a teaching mechanism. The research has found that T levels contain lots of maths but that it is not as explicitly evidenced (when compared to A levels). There are gaps and an inherent trade-off between applied and explicit learning. Further work across all of level 3 is planned for 2024. This work should have been completed by government before the roll-out of T levels and we urge that similar mistakes are not made with respect to ABS.
d. Foundation years in Engineering are likely to become *more* important, not less (we note that T level foundation years are referenced in the consultation). Their future should be assured.

13. It is problematic that the scope of the Advance *British* Standard extends only to England. No mention is made of how this will be managed within a UK system.

    a. National and international parity is necessary.
    b. Can the EPC provide evidence of how many in Engineering import and export between UK administrations and potential impact of this?
    c. Authentic efforts will be needed to encourage the devolved administrations to make systems compatible.

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[i] New Approaches, https://epc.ac.uk/uploads/2018/05/FINAL-New-Approaches-Case-Studies.pdf
[ii] Engineering Opportunity, https://epc.ac.uk/publication/engineering-opportunity-maximising-the-opportunities-for-social-mobility-from-studying-engineering/