

## Implementation of T levels

Education for Engineering (E4E) is the body through which the engineering profession offers coordinated advice on education and skills policy to UK Government and the devolved Assemblies. It deals with all aspects of learning that underpin engineering.

It is hosted by The Royal Academy of Engineering with membership drawn from the professional engineering community including all 35 Professional Engineering Institutions, Engineering Council and EngineeringUK and the Engineering Professor's Council.

In terms of the fifteen routes for T levels, the engineering community has a strong interest in the engineering and manufacturing route, the digital route and the basic digital content across all routes. The Royal Academy of Engineering was asked by the Department for Education to submit the draft proposal of the core content for the engineering and manufacturing T level route.

In producing this response, we had regard to several underlying principles that we agreed should guide the implementation of T levels. These are:

- Students should not be disadvantaged by opting to study T levels (compared with A levels)
- T levels must be, and be perceived to be, of high quality (rather than a less rigorous route than A levels)
- T levels must be designed and implemented so as to enable a smooth transition to higher level further education, higher education, apprenticeships or skilled employment

### Questions:

*1: Do you agree that the principles outlined above are the right ones on which to base a review of which level 3 qualifications we should continue to fund in the new system, alongside T levels and A levels? Yes/No. If no, what other principles do you think we should consider?*

We welcome the aspiration though would note the engineering community has significant concerns that the UK's long-standing lack of prestige for technical educational routes has the potential to prevent T-levels being a respected, high quality qualification for those interested in engineering.

The UK education system is weighted towards the academic with all headline school performance measures incentivising and driving behaviour that only reward pupil attainment in a fairly narrow field of academic subjects. Thus the real challenge for T levels (and indeed a major part of the rationale for their development) arises from this cultural feature. Even the language used 'technical' 'practical' 'vocational' or 'applied learning' carries connotations of an inferior route that is not for the brightest students (who aspire to A levels and university). The advent of T-levels alone cannot surmount this binary system. We recognise and welcome that the government has set out its ambition for "our technical education system to be as prestigious as higher education in this country, and for it to rival the best systems in the world"<sup>1</sup> and the engineering community stands ready to support this in practice.

However, we acknowledge that the required shift in a long standing cultural mind set will take time and a concerted pan-government, industrial and societal effort to overcome (as well as the enthusiastic buy-in and good will of employers, universities, parents, teachers and other influencers among others). Until there is a wholesale shift in this and

---

<sup>1</sup> Industrial Strategy paper 2017:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf)

government set measures for schools that value wider more holistic learning and more creative subjects like engineering, we cannot be confident that T levels and other technical routes will achieve their potential.

We support the proposition that T levels should visibly be the only FE based route at level 3 rather than simply another option. Indeed, the engineering community would also urge that 'Applied General Qualifications' (AGQs) are ultimately removed from the post-16 technical education landscape.

*2 - Do you agree that we should review qualifications at level 2 and below based on the principles that these qualifications should support progression into employment or higher-level study and have a value in their own right alongside T levels?*

We agree that the principles underpinning T-levels (labour market value for employers as well as simplification of a complex system and maintenance of standards) are a good basis to review the qualifications available at level two. Indeed in time a full positioning of T levels at level three may necessitate aligning technical qualifications at level two as a 'gateway'. However any moves in this direction should also bear in mind there will be a portion of a cohort studying level two qualifications in the further education (FE) sector who will not choose to go on to do a level three qualification and for whom the attainment of level two qualifications by age 19 will be an appropriate aim.

## **Components**

*3 - Do you agree with the proposed approach to assessing technical qualifications?*

Our principle issue with the proposed approach is that we are not convinced that pupils studying engineering are best served by a single end point assessment (it is not entirely clear what is envisioned at this stage). This is due to the creative and practical nature of engineering and the qualities and skills that employers value which include knowledge, understanding, intuitive ability, ideas, practical solution finding and team work which cannot be comprehensively assessed solely via this method. In our view, this requires a much more of a continual assessment approach including coursework and project work is required where subjective marking and assessment can be undertaken.

Whilst we recognise that examinations provide one method for demonstrating the ability to think and work under pressure, the engineering community believe if conventional written examinations are used to assess the T level, they should constitute part of a mixed package of assessment measures. We would also point out that there are other methods of assessment which can be used to assess behaviour under pressure such as oral examinations, time-limited design and build tasks, or problem solving challenges. Fitness for purpose must be the over-riding principle here.

There is also the issue that students who are aware they do not perform at their best in traditional exam may be attracted to the more practical and applied knowledge system that T-levels promise but then be deterred if it transpires that a written exam is the method of assessment. If T levels are successful, they will attract a range of students with different abilities, aspirations and ambitions and different ways of learning. This must be recognised and celebrated rather than attempting to force them back into the straitjacket of academic written exams.

We agree that there must be a proper validation of the required knowledge and skills required as well as consistency of standards across different providers but this need not equate to a linear end point assessment. Best practice in this regard can be carried across from existing engineering BTEC qualifications assessment that encompass project-based assessment methods successfully.

As regards the difference between assessment of the core and specialist element, we would also stress that T-level qualifications are a college-based route rather than developing competence in any specific occupation. Consequently the engineering community firmly believe that the level of specialist content (specific to an occupation or group of occupations) should be minimal.

In relation to the difference between assessment of the core and specialist elements, we would also stress that since T-level qualifications are intended as a college-based route rather than a route to developing occupational competences. For this reason, we firmly believe that the level of specialist content (specific to an occupation or group of occupations) should be minimal.

Our approach of a greater breadth of subject knowledge across the broad discipline of engineering has the following benefits:

- a. The majority of E&M occupations require similar generic foundation knowledge skills and behaviours. For example, mathematical principles and the principles of design are both common even when applied in different contexts and to different ends.
- b. Many learners will not have decided on the area of E&M in which they wish to make a career and so should be offered learning that will allow them to follow a multitude of E&M career paths.
- c. E&M employers will have a wider pool of potential recruits on which to draw.
- d. T levels will be college-based qualifications and so better suited to providing generic content.

The direction to assess skills that deliver "threshold competence", especially in occupational specialisms, is likely to result in very small cohorts of learners that are not economically viable, demand investment in specialist equipment and facilities that is unaffordable, and create funnelling of student education that unnecessarily restricts their options for employment or further learning. A 'good' technical education should be as broad as possible, within the boundaries of a recognisable route, and provide effective knowledge and understanding of the chosen vocational subject to support entry to employment, apprenticeship, or further learning, without competing with or cannibalising the occupationally-focused apprenticeships to which it is related.

#### *4 - Do you agree with the approach to grading technical qualification components?*

Please see the answer given to question 3, above. We do not support a written exam as the only method of assessment. However, if there is to be a written exam, we believe there must be comparable read across from A -levels to assist employers, higher education providers and others to understand they are as valuable as and equivalent to A levels.

Grading of E to A\* for achievement in the technical knowledge examination is logical and provides parity with A-Level outcomes. Grading of Pass, Merit and Distinction is appropriate for achievement in the work placement and/or practical assignment. However, grading is not applicable to 'threshold competence'.

It is the nature or content of the components which may create confusion. Tradition components such as Maths, Physics etc are well understood (in the context of A level). Components in T level are needed to be well defined otherwise the grading has no meaning.

#### *5: Do you agree with the approach to maintaining comparable standards of performance for technical qualifications?*

We broadly agree with the aspiration though would warn that there is likely to be significant variability in delivery, facilities and learning opportunities in simulated and real work environments, and significant subjectivity in assessment of project work and assignments. The risk is that this will result in inconsistent performance outputs for skills elements, unless this is assessed using a similar method to that used for assessing apprenticeship standards.

*6: Do you agree that prior attainment of the core could count if students switch to another T level within the same route? Yes/No – Please give reasons.*

We believe this should be a non-issue as the core should not significantly differ between pathways within a single route for the reasons given in our answer to question 3.

This transparency and mobility will be enabled by having clear definition of the learning outcomes within all T-Level qualifications, so that the level and size of each unit of learning are quantified and equivalence can be established, certainly within routes but possibly across routes. This methodology will also reduce the number of units of learning that have to be created by identifying common core learning outcomes across the entire range of T-Level qualifications.

### **Work placements**

*7: Do you agree with the proposed approach integrating the work placement within the T level programme? Yes/No. please explain your answer. If no, what would be a preferable approach?*

Whilst we broadly are in agreement we would emphasis the scale of the challenge in managing to obtain an appropriate, meaningful and high-quality work placement for all T level students.

The engineering community have long been vocal proponents of the value of appropriate and quality work placements for a wide variety of learners. However, unfortunately the experience in the UK to date has been patchy at best and the most capable students with the most committed and experienced college work placement liaisons often struggle to find a suitable placement. These issues tend to be magnified in certain geographical areas where the industrial engineering presence is scarce and could pose a substantial potential risk to the success of T levels. This will be discussed in more detail in question 11 and 13.

There is also a big difference between 'work experience' (seeing what work is really like and perhaps only a couple of weeks in duration) and 'work placements' (focussed on genuinely contributing to real work and generally for a more substantial term as part of overall career development) and so careful consideration must be given to give students the right blend of exposure and experience. In this regard, it is unclear what quality assurance is proposed to assess this and further clarification would be welcomed.

We would recommend that the features of comparable countries that do manage to successfully incorporate technical work placements in a course of study be looked into in order to effectively engineer the widespread cultural change needed to ensure all T level students can be offered an appropriate work placement.

*8: Do you agree with the proposed method of appraising the student's performance on their work placement, including the Employer Reference? Yes/No. please explain your answer. If no, what would be a preferable approach?*

We would question the added value of a reference especially as employers tend to be unfamiliar with assessing performance against learning objectives in an educational context. To mitigate against this issue, we would agree with the proposed structured

(standard template) reference and recommended this be done in conjunction with the student's T level provider.

We would also add that due to the difficulty in securing a work experience placement, it is essential the students not be penalised for having failed to secure a placement. It may also be an issue that employers can be reluctant to provide references that go beyond a standard HR reference for fear of litigation.

### **Quality assurance, monitoring and reporting arrangements**

*9: Do you agree with the proposed approach to quality assurance set out above? Yes/No – please explain. If no, please explain how we can ensure work placements are quality assured?*

Yes we broadly agree though would emphasise the need to ensure Ofsted is adequately supported so they have the capacity and expertise to ensure this system is effective for the inevitable wide variety of work placement settings. There is also potential for the valuable inclusion of professional bodies as part of this where T levels map to professional standards.

### **Ensuring accessibility to all students**

*10: What additional support or further modifications should be available to those with greater needs or special circumstances (such as caring responsibilities) during a work placement?*

The engineering community is fully supportive of an inclusive approach to learners with different needs or special circumstances and would defer to the answers coming from those with special expertise in supporting such learners to achieve their potential.

We would however add that the engineering community view prior attainment in the form of passed GCSEs in English, Mathematics, and Science (double award) as necessary before undertaking a E&M T level (a GCSE Design & Technology would be desirable though no essential). This is principally because these skills are necessary to build a successful career in a safety critical industry such as engineering and also relates to our point made above that T levels but not be seen as an 'easier' or 'lesser' route for less capable students. To this end, we are very keen to ensure that the funding mechanisms and incentives here do not operate so as to encourage T level providers to take anyone. We note it is an option to not award a T level to students and this is entirely correct as it must represent a valid level of student attainment.

For those students who do not have this level of prior attainment but wish to pursue an engineering and manufacturing T level, they should be encouraged to undertake a 'transition year' (as proposed in the Sainsbury review) between GCSEs and T levels, during which they can achieve a GCSE equivalent level of proficiency in English, Mathematics and Science (double award).

Employers should have provision in place for employees with greater needs or special circumstances. Additional funding may be required for students, however, as they may not have means of independent transport.

*11: How can we support students to access work placements relevant to their course in areas where there are no employers to offer work placements nearby?*

As mentioned above, the issue of work placements can be particularly difficult for engineering students. As well as a more pronounced cluster effect than many other industries, there are other very real barriers to some T level students being able to achieve

quality work placements such as an impractically long commute and providers have no levers to pull to ensure employers take on students in this way.

From the employer's end, providing a student with meaningful work experience (that meets the stated purpose of allowing students to develop up to date technical skills and specialist knowledge) requires a significant resource investment in terms of money and (student supervision as well as off the usual job) time, the latter of which must not be underestimated in certain hazardous working environments such as manufacturing facilities, aircraft maintenance environments, nuclear sites etc.

Consequently it is hard to envision these issues being overcome without a significant investment and effort to enable employers to participate given the huge potential numbers of T level students. This issue goes to the heart of the government's commitments on industrial strategy to ensure all regions of the UK benefit from enhanced growth as well as providing people with opportunities for social and occupational mobility. The engineering community would be very supportive of such steps and has a strong track record of encouraging such schemes. We welcome the announcement of the Work Placement Capacity and Delivery Fund though would suggest the investment announced so far will simply not be sufficient given the scale of the challenge.

Within the existing system, we would recommend a more flexible and imaginative approach to placing engineering students with the support of providers. Engineering is a very broad church and there may well be relevant elements to be found among local employers that can at least provide a grounding in the work exposure and skills envisioned by the work experience element of a T level. For example, many organisations that do not identify as engineering are underpinned by engineering as demonstrated by the following examples:

- Manufacturing industries such as the food processing, pharmaceutical, biological, and medical equipment providers
- service industries in support of building and building systems maintenance, logistic companies, the post office, transport including rail, roads and buses
- entertainment radio television internet, cinema, theatre

Students therefore could still gain valuable experience to assist in their learning and enable them to apply engineering principles in the real world in a variety of contexts. Clearly a balance must be struck between a more flexible approach and a placement that cannot reasonably be described as related to the field of study. Other options could include a team project (for example to design, produce and test a product) with external companies assisting the teams or perhaps helping assess the final product. This approach may also ultimately attract people from industry into an educational role which is another critical issue (as discussed in the answer to question 27). LEPs, local Chambers of Commerce and other relevant bodies should also play an active role in ensuring businesses are encouraged and supported in offering work placements.

Additional funding should be made available for students who are required to travel out of area or live away from home to gain access to effective work placement opportunities.

*12. Do you agree with our suggested approach to providing students with financial support whilst on a work placement?*

We would restate one of our fundamental principles that no student should be disadvantaged by opting to study a T level rather than an A level and therefore the levels of financial support provided should mirror what happens at A level. In reality, this is likely to mean funding the provider to ensure they compensate students for reasonable costs for travel and food.

The issue of students reliant on earnings from part time employment also must be addressed as this may deter them from work placements if it means having to give up that source of income.

*13. What are the common barriers / challenges for employers to host work placements and how can we support employers to offer work placements?*

We have explained above the enthusiasm the engineering community has for work placements whilst recognising the scale of the challenges faced in actually placing students.

The obvious barrier for employers is cost, directly financial as well as the burden of supervision of a work-placement student is likely to be a greater impact than cost. For many work environments, safety equipment and protective clothing will be required, and access to work stations, machines and tools may require additional purchase of equipment or licences to avoid impacting production.

A lack of understanding can be a big barrier and there is some relatively low-cost awareness raising and myth busting (for example, about insurance costs, disclosure and barring etc) that should be undertaken to prepare and encourage employers. This should be relevant to the sector and size of employer to recognise their particular concerns.

Other barriers can include inflexible approaches to timing (some businesses are happy to have a young person on placement one or two days a week over a longer period but would not consider a solid block placement) or a previous bad experience (one placement student who doesn't want to be there or messes around will put an employer off offering placements again).

Depending on the timing of the work placement, it may well be that for T levels, students' prior learning will make them more useful than a student with no relevant skills and knowledge and if this is to be the case, this should be exploited in communications with potential placement providers.

There is also some concern about the impact for those investing in apprenticeships, other student work placements and ensuring employers have adequate support in meeting both demands.

Students themselves will also need support in preparing for the work placement and working environment. T Level work placements may become competitive (as with university level sandwich placements which involve normal recruitment processes) requiring them to learn the employability skills of CV writing, application forms, interviews etc. They will also differ in maturity at this age and may benefit from being prepared for employer expectations. To make them work, both the employer and student will need to understand each other's expectations so the experience is positive and beneficial for each.

*14: How do these challenges vary across industries and location types?*

As explained above, the density of engineering employers has great geographical variance, even more so when sectors (such as nuclear, aerospace and automotive which tend to operate in regional clusters) are factored in.

Office and desk-based roles may be more accessible and less expensive to support than manufacturing, production and processing roles. Roles that are primarily site-based may require significantly more training and supervision to be provided by the employer. Roles that are delivered by individuals working alone, and roles within SMEs are likely to create more disruption to productivity and profitability than those taking place within large teams and large enterprises.

*15: How can the range of employers, including SMEs, be better supported to offer work placements for students with additional needs?*

This should flow from an organisation's general commitment to inclusivity (rather than only for work placements). This is likely to prove a more significant challenge for SMEs with less resources at their disposal and in some cases the provision of a support worker to help manage any additional needs may be beneficial.

*16: Would employers value a recognition in delivering work placements, for example through a form of 'kitemarking'?*

Potentially yes and a benefit of an accreditation logo could be for sector leaders to encourage others to follow suit. However the diversity of employers, even within single industries means it is unlikely that all employers would value this.

*17: Should students be able to opt to take a higher level maths or English qualification e.g. core maths, A level maths, or work towards higher grades in GCSE even if T level panels do not require it? What are the issues for providers in delivering this?*

The first priority of the engineering community is establishing T levels as a valuable qualification that has currency with employers, HE, learners, parents and other stakeholders. We would therefore strongly urge that the temptation to shoehorn in other qualifications is avoided as this would confuse matters.

Should students wish to pursue additional qualifications (such as higher-level maths) on top of their T level, they should be supported to do so, but that remains a separate course of study and qualification from the T level itself.

T-Level maths should be relevant to the vocational education and should be recognised as having parity with A-Level (not equivalence with an A-Level Maths qualification). It seems unlikely that there will be sufficient study time available within a T-Level programme for a student to be able to also complete the additional academic maths content required to succeed in an A-Level examination

*18: Which of these options for funding maths and English within the T level programme do you think would be the most appropriate? Please explain the reasons for your answer.*

All T-Level qualifications should be designed to contain the required maths and English learning outcomes to have parity with at least a Level 2 qualification in maths and English. The T-Level maths and English content should be 'functional', in that it relates directly to the vocational content of the core and specialist options being studied. However, the learning outcomes should clearly equal or exceed Level 2 expectations.

*19: Where there are additional occupation-specific requirements that can be delivered or assessed off the job, do you agree that these should be incorporated into T levels? If not, why not?*

Yes although we envision that anything students need for the occupation should be suitable incorporated into the T level anyway. For example, to access a construction site for work placements will require a form of onsite certification. Any T-Level learning outcomes that are able to contribute to role competence assessment later should be recognised by those assessment organisations responsible.

*20: Do you agree with the information we propose to include in the certificate?*

Yes.

*21. Do you agree that partial attainment should be reflected in the proposed transcript?*

Yes as a basic principle of fairness in recognising attainment and also to help learners who cannot complete their course but may wish to return at a later date.

We would also raise the issue of the possibility of learners leaving a T level before completion receiving proof of attainment at a level two where appropriate and the standards have been met.

*22: How can T levels be designed in a way that enables students to progress onto apprenticeships?*

This sort of alignment is unlikely to be an issue given the proposed establishment of the T level system (for example, the same people sitting on the trailblazer apprenticeship panels as for T levels route panels).

We would urge that in presenting T levels as an option to young people, there should be a clear explanation of how this qualification can be used as a springboard into other courses, further study or perhaps employment. However it should be made clear that there should be no expectation or assumption that T level students will naturally progress to an apprenticeship at level four. The different nature of apprenticeships (such as their higher exposure to specific work environment issues such as regulation) means some employers will reasonably require potential apprentices complete an apprenticeship at level three first or do this via an accelerated progression course.

*23. How can T levels be built to provide a solid grounding for, and access to higher levels of technical education?*

This should be at the very foundation of T levels as providing a more applied base of learning that provides the option for students' appropriate progression in their chosen field and ensuring the T level learning outcomes support relevant access conditions for level 4 qualifications in technical education.

*24: What good practice already exists in enabling learners with technical (rather than academic) backgrounds gain access to, and succeed on, degree courses?*

As a starting point, the engineering community is fully supportive of the notion that T levels should equip students to the ability to progress to higher education with a grounding of knowledge with a recognised academic provenance. In practical terms this would mean that T level students receive the same depth of knowledge as an A level student, just not the same breadth.

Depending on the institution's varying requirements, it may be that T level students require extra, higher level maths (or other studies). Most universities are already well versed in providing opportunities for students to 'catch up' in their first months at the institution via various remedial or extended learning programmes. We would contend that T levels students should be seen as being in no different position, just with different potential gaps in their required knowledge.

For the success of T levels, it is essential that higher education unreservedly recognises the value of T levels. The current levels of acceptance of level 3 technical qualifications (such as BTECs) still varies amongst providers<sup>2</sup> and this must be proactively addressed.

---

<sup>2</sup> Vocation, Vocation, Vocation, Social Market Foundation with University Alliance and Pearson: <https://www.unialliance.ac.uk/2018/01/29/vocation-vocation-vocation-2/>

*25: What support should we consider as part of a transition offer to ensure that students can progress to level 3 study and particularly T levels?*

The engineering community would agree with the proposed requirements of English and Mathematics and for engineering would add the requirement of a double award in science.

*26: How should we adapt T levels for adults so that they meet the needs of adult learners?*

Distance learning and blended learning delivery may be suitable for adult learners with other commitments and pressure on their time and resources. Raising awareness of existing packages of support available will also be essential.

*27: What do you think the biggest challenges will be for providers in delivering new T levels and what additional support do you think providers will need?*

The key issue from the perspective of the engineering profession is the current lack of expert teachers and tutors in further education. In this regard, the Industrial Strategy green and white papers recognition of this challenge and accompanying promises of additional funding are very welcome. However, given the critical shortages of teachers in the schools' system, who tend to receive higher pay than their further education counterparts, this will be a significant challenge. Attracting inspirational teachers with the right skills who have relevant industry experience will be critical to the success of T levels.

Additionally, colleges have been denuded of investment for many years and will be in critical need of a further substantial injection of funding, particularly in high-cost subjects such as engineering, to ensure that they have the necessary resources, facilities and infrastructure to support the delivery of the new T-level qualifications.

Longer term funding arrangement for periods of three to five years would help stabilise FE provision and stimulate colleges and other providers to work with local agencies such as LEPs to better plan and invest in skills provision to meet local employer needs.

Government also needs to be aware of the differential costs associated with different T-levels. Often colleges will subsidise provision of high cost laboratory-based subjects from lower cost subjects. In addition, subjects such as engineering necessarily take longer to study than others such as retail. This is reflected in the length of apprenticeships and so should equally be reflected in the length and commensurate funding of college-based provision. A more sustainable model of funding that stimulates appropriate growth in STEM T-levels in reflection of local employer demand is therefore favourable.

Providers should also support the development of lecturers in engineering through CPD and enable the further development of dual professionals (such as engineers/tutors) through schemes such as Teach Too enabling tutors to come into industry for work placements and experience to refresh their technical and industry knowledge. Individuals should be supported and encouraged to move back and forth between industry and education, through schemes that keep their knowledge current and articulate the skills they acquire in each to the other.

Gaining and maintaining occupational relevance will be a significant challenge for many providers aiming to deliver T-Levels. T-Levels need to offer qualifications that are able to develop a sustainable reputation for providing the foundation for a career and further professional development.

This is in addition to the challenges already cited above in relation to ensuring quality work experience placements.

*28: What information do you think will need to be provided to be able to market T levels effectively to students and parents, and how far in advance of first teaching will it be needed?*

Students and parents will need to know T levels have currency and that there are clear progression routes from there to higher education, employment (that they will have a labour market value to employers) and apprenticeships and consequently clear recognition of T levels in access conditions is necessary. T levels should be positioned as a springboard to a variety of different and exciting career paths as well as the channel for those aspiring to creative careers.

As articulated above, the long-standing prejudice towards technical education means there must be a huge amount of public communications work in promoting the value of this new system. The FE sector does not have the capacity to do this on its own. This task is especially important prior to the intake of the first cohort as unless the tone and messaging are right, parents will not want their children to act as the 'guinea pigs' for this new system. Parents will also want to see that household names and blue-chip companies are supportive of T levels and recognise their value.

The Engineers & Engineering Brand Monitor (which establishes the national benchmark for public perceptions of STEM careers) shows that parents and teachers are well-positioned to influence the educational and career trajectories of their children, yet their knowledge of engineering careers and salary outcomes is limited; the same applies to students. Both students and teachers need to receive timely information on the diversity of career pathways enabled by an engineering and manufacturing technical qualification, including salary expectations. They should also be informed about their options for progression, including examples of employer-led schemes at higher technical level and potential routes into higher education. The Industrial Strategy white paper also recognises the importance of signalling the value of level three maths qualifications for access to a wider range of careers and to higher education courses with a strong quantitative element.

*29: How much engagement do providers currently have with industry professionals in shaping the curriculum, teaching, and training other members of staff?*

Providers will be best placed to answer but in our experience, this has been very patchy at best and will need to be addressed across all regions.

One way in which this can be accomplished is via the recommendation in our proposed core content for the engineering and manufacturing T level report that the common core content be structured using a framework based on the Engineering Council's Output Standards for approved qualifications and apprenticeships (the 'Output Standards'). This would work similarly to the system with apprenticeships. At the request of individual employer groups, the licensed professional engineering institutions can ensure that apprenticeship align where appropriate with the UK Standard for Professional Engineering Competence (UK-SPEC) and the Information and Communications Technology Technician Standard (ICTTech) through formal approval/accreditation processes. Within engineering, the single standard UK-SPEC is interpreted by each of the thirty five professional engineering institutions to identify the specific knowledge, skills and competences required for the specific discipline. The Engineering Council, on behalf of the engineering profession, uses the Output Standards as the basis for approving or accrediting qualifications and apprenticeships that provide the education base for professional registration (available from Levels 3 to 7).

Where a qualification does not meet the standard, the professional engineering institution may work with the awarding body/employer to improve the qualification so that it does meet the requirements. These 'approved' and/or 'accredited' qualifications are publicly listed on the Engineering Council's website.

*30: What challenges will providers face if they want to bring in more industry expertise?*

We would note here that industry expertise on a voluntary basis may not be a reliable source of delivery, and recruitment of expertise from industry is often an expensive option. Specialist provision may be acquired through partnership with specialist vocational training providers who already have industry recognition, such as TWI Training as is being done by some apprenticeship providers.

*31: Should we seek to further influence which T levels are offered by providers, according to local and national skills needs? How?*

Yes, it is recognised that there are national skills shortages in certain key industries and sectors and both industries and individuals are mobile therefore an element of future proofing is required. Equally learners should not be restricted only to industries available in their immediate region on core social mobility and opportunity principles. There must be a balance in preparing students for actual and real opportunities in their local area as well as gain the skills to be able to adapt to any changes in regional and national employment needs or upskill for future technologies and industries. It would be beneficial to the quality and delivery of T-Levels to require providers to have relevant employers involved in their T-level governance, and this would provide a clear indication of the feasibility for a specific T-Level to be delivered in that area.

It should also be remembered that T levels will be a level three qualification and therefore the amount of narrow occupational specialism will be inherently limited. In practical terms though, providers are highly unlikely to find and recruit a specialist in a particular area (e.g., nuclear power) when there is no relevant industry around.

On a regional level, the engineering community welcomes the announcement in the industrial strategy white paper of the development of local industrial strategies and the recognition that educational providers must be effectively linked with local labour markets. We understand that the intention is for the newly created Skills Advisory Panels (to be integrated into Mayoral Combined Authorities and Local Enterprise Partnerships) to produce rigorous analysis of the current and future supply and demand for skills and help areas form a clearer understanding of their skills requirements. It has been promised that they will have real, meaningful influence over the provision of education and training for those over the age of 16 and their analysis will be structured around the 15 new technical education routes. We would therefore suggest providers are encouraged to link the specialist elements of T levels to this local labour market analysis.

For the engineering community, the greater issue is that of differential funding (as discussed in answer to question 27) and the need to ensure funding adequately reflects the true cost of provision in higher cost subjects like engineering. This would act to stimulate appropriate growth in the relevant T levels in reflection of local employer demand.

*32: How do providers currently take account of local and national skills needs when planning their provision and how do they work with the existing structures that have responsibility for local skills planning?*

-

*33: What additional support will providers need to ensure that T levels meet local skills priorities?*

Please see answer to question 31.

## **Procurement**

*34: What material could reasonably be included under the copyright of a technical qualification? Are there any other steps that we could take, within the parameters of the legislation, that would allow this to operate effectively and in everyone's interests?*

-

*35: How can the above mechanisms (i.e. licence length, lotting and transferability) be used to help AOs recover their investment, maintain appropriate profit margins but also keep the market competitive for future re-procurements?*

-

*36: When contracts are re-procured what would be needed over and above the licensed copyright to submit a competitive bid? How will AOs keep their skills levels up to maintain their capability to bid in future re-procurements?*

We would doubt that there would be credible competitors when contracts are re-procured due to the lack of incentive to keep that part of the business funded. Our priority would be ensuring the provision is of the highest possible quality.

## **Pricing mechanism**

*37: Are there other variables (in addition to those listed in the text above) that could influence the return on investment for AOs? How might these factors influence interest from the AO sector for initial and further competitions?*

-

*38: Which of proposed performance measures are most important? Please explain. Are there any other measures, such as student and employer feedback that should be part of the accountability system for T levels?*

We suggest that it is the balance of these performance measures that are important in order to give a nuanced view. We would particularly stress the importance of destination measures (which can illustrate the value of this new qualification for future potential students) but note that it is much easier to measure destination for A level students since UCAS log all university acceptances and universities have a defined time for enrolment. For T levels, significantly more work would be required to ensure record is accurate because there is no central system to record student employment.

Again, we raise the issue that students must not be penalised if they are unable to gain a work placement and therefore have no employer feedback.

## **Funding**

*39: Do you have any comments about how we might approach the funding of T levels? How could the funding formula be adapted to distribute funding for T levels?*

Please see our answer to question 27 about the need for funding to reflect the actual costs of delivery.

We believe that the government must incentivise the teaching of high-cost subjects by introducing a differential funding mechanism that would provide colleges with increased student funding for high-cost programmes (such as the new T-levels in engineering and manufacturing and in construction and built environment) and correspondingly lower

amounts of funding per student in lower-cost programmes. The risk otherwise is that even providers keen to provide engineering-based T levels will not be able to afford to run these courses.

*40: How might we adapt funding flows to AOs to make sure that the full range of T levels is available to students around the country?*

Please see our answer to question 39.

*41: How could any adverse impact be reduced and are there any ways we could better advance equality of opportunity or foster good relations between people who share a protected characteristic and those who do not? Please provide evidence to support your response.*

The engineering community is very supportive of initiatives to increase diversity and inclusion across the engineering profession and the Royal Academy of Engineering is currently leading a programme on this. It is unlikely that there will be universal access to all T-Levels in every area of the country and it may be necessary to provide travel and subsistence support to students with a protected characteristic to enable them to gain access to a suitable T-Level out of their area.

However, we would defer to others better placed to answer this important question in full.