Royal Academy of Engineering Diversity Impact Programme (DIP) Community of Practice (COP)

Wednesday April 22nd, 2026

"From Engagement to Entry: How Outreach Expands Access for Engineering Higher Education"

Stella Fowler, Director of Policy and Research, Engineering Professors' Council

An Overview of the Demographic Intake into UK Engineering Degrees

Good morning colleagues. It's a pleasure to be here, and I'm honoured to be trusted to talk you through *an Overview of the Demographic Intake into UK Engineering Degrees*. My name is Stella Fowler and I'm the Policy and Research Director for the Engineering Professors' Council (EPC). I'm unashamedly a bit of a data wonk, but I promise this morning not to read to you too many numbers from slides. There many on the slides for your perusal (not least to circumvent licencing restrictions on some of the data) to review at your leisure. But today I will draw on the amazing facts and figures to tell the *story* of who's admitted to UK engineering degrees; who gets in, who gets through, and who never even makes it to the starting line.

Because when we talk about engineering enrolments, we're not just talking about recruitment. We're talking about identity. About who sees engineering as "for them". About the structures that quietly open doors for some and quietly close them for others.

And as you'll see, the picture is not one of a single barrier, but of many small ones – a series of filters, nudges, and unintended consequences that accumulate into something systemic.

Introduction: a fragmented landscape

Let's begin with the landscape itself. It's fragmented.

Engineering is not a universal offer across UK higher education. In fact, HESA tells us that fewer than half of all HE providers deliver any taught engineering provision at all. Engineering is already a selective ecosystem before a single applicant appears.

And the boundaries between FE and HE are blurring. Foundation years taught in colleges. Level 4 and 5 provision sitting in hybrid spaces. Top-up routes that look like HE but feel like FE. It's becoming a tertiary sector, not a binary one. What's more, Government signalling supports this.

This matters because the routes into engineering are multiplying – but the clarity around them is not.

Engineering popularity: a long, slow drift

If we zoom out over the last decade, engineering's popularity has been gently declining. Not collapsing, but drifting. A slow leak rather than a dramatic rupture (see the orange degree trend line on slide 3).

We see that engineering still represents only about 6% of the UK student population. That's a surprisingly small footprint for a discipline so central to national ambitions, for example around infrastructure, net zero, and innovation.

The paradox is that engineering is both strategically essential (the EPC has campaigned endlessly on this one, most recently to the Welsh Tertiary Review) and a disciple under pressure.

State of engineering: a system under strain

Undergraduate engineering is a system under strain. The latest HESA data shows that Engineering degree, enrolments sit just above 120,000.

But the system is under pressure.

Engineering programmes are expensive to run. The tuition fee shortfall per English student is substantial (it's even more dire in Wales where the high-cost funding is lower) and the gap is bridged by international students and lower-cost disciplines. That's not a sustainable model, and everyone in this room probably feels it every day.

Meanwhile, the demographic tide is turning. The number of UK-resident 18-year-olds – the backbone of engineering recruitment – is projected to fall sharply from 2038. We are building a system whose primary intake group is about to shrink.

So, the question becomes: *who else could engineering be for?*

A leaky hosepipe: demand rising, enrolment lagging

One of the most striking patterns is what we sometimes call the "leaky hosepipe".

Applications to engineering have been rising. Offers have been rising. Acceptances have been rising. But enrolments have been barely moving.

Engineering popularity has been gradually declining, with the media more recently celebrating an apparent change of fortunes when it comes to undergraduate applications since 2023, concealing, perhaps, a conversion dilemma.

Somewhere between application and enrolment, we are losing people. Not because they can't get in – but because they choose not to come.

This is not a pipeline problem. It's an engagement problem. And, as you'll be discussing in more detail today, we are already excluding too many potential engineers before we even get to application and enrolment stage.

So, let's think about the barriers…

A provider balancing act: the economics of who we admit

Providers are walking an economic tightrope, and outreach, recruitment and admissions teams are part of a careful balancing act; and one that varies by provider mission and student perceptions. This time last year, I was reflecting on provider bifurcation, with intake trends indicating tiered provider system in HE engineering differentiated by qualification and attainment. Something of a wholesale change in the scale and shape of provision where, because High tariff providers are fishing in deeper waters, admissions are increasingly concentrated in a smaller number of providers. Demand was clearly outstripping supply, with a healthy pipeline of engineering undergraduates met with a provider-led ceiling on admissions.

We see domestic students dominate first-year growth but know that international students cross-subsidise the programmes. Engineering is structurally expensive, and the financial model is fragile.

And with the demographic dip ahead, the competition for 18-year-olds will intensify. Engineering will be chasing a shrinking pool of students who already have many other options.

This is not just a recruitment challenge. It's a strategic one.

Engineering is becoming harder to choose: student commitment

Between 2019 and 2023, applicants and schools had lived experience of engineering becoming harder to get into. But paradoxically, applicants were also becoming more hesitant.

More applicants declined engineering offers. More made fewer engineering choices. More withdrew passively from the process.

Providers now have a poorer understanding of their own pipeline until later in the cycle.

Engineering is no longer the firm choice for many. It's a speculative one.

Engineering speculation barrier: a drift to other subjects

And where do these would-be engineers go?

Increasingly: Computing. Architecture. Sport science. Creative subjects.

In five years, 55,000 engineering hopefuls went on to study something else. And 40% of them were women.

This is not a failure of aspiration. It's a tale of piquing an interest but not realising it, of keeping engineering attractive once the offer is on the table.

The scale of potential engineers ultimately committing to another subject getting worse, and we need to reflect on when in the admissions cycle it might be addressed.

Who gets in, and who doesn't: equal access

Let's talk about equity.

A "typical" engineering applicant is still an 18-year-old white male from a high-participation area, studying A levels. And he is more likely to be accepted than his underrepresented peers.

We see persistent patterns:

- White applicants are underrepresented in rejections.
- Applicants from high-participation areas are overrepresented in acceptances.
- Lower POLAR quintiles face higher rejection rates.
- BME applicants and disabled applicants cluster in BTEC routes.

These are not dramatic disparities, but they are consistent ones.

And consistency is the hallmark of structural bias.

Ethnicity, age, postcode: the demographic filters

Across ethnicity, age, and postcode, the story is the same: engineering admissions do not appear to be neutral.

Younger applicants are more likely to decline offers. Older applicants are more likely to be rejected. Applicants from deprived areas face more barriers. Applicants from affluent areas face fewer.

These are not individual decisions. They are patterned outcomes.

Advantage doesn't always work as intended: contextual admissions

Contextual admissions are meant to level the playing field. But in engineering, they often don't.

Applicants without parental HE experience do not have higher offer rates overall. Applicants from schools with high free-school-meal rates have *lower* offer rates. And the data hints that contextual offers are likely applied inconsistently - sometimes by school factors, sometimes not at all.

Meanwhile, applicants declaring disabilities are increasingly advantaged in decision-making – but those with mental health conditions are underrepresented in acceptances and more likely to withdraw. Notwithstanding that disability data is flaky for complex reasons around disclosure and categorisation. (You are invited to check out the EPC's *All in For Engineering* campaign to engage with our important work on neuroinclusion.)

My conclusion from demographics: this is a system trying to be fair, but not yet succeeding.

Who engineering is built for: an A level elite

Three-quarters of 18-year-old engineering entrants in our study held A levels. And not just any A levels - modally high-attainment ones. More than 1 in 3 accepted Engineering applicants with A levels held straight As or higher; nearly 1 in 10 accepted applicants with 3-A levels or higher presented with A*A*A*

Engineering is an A-level-first discipline. My understanding is that this is intentional.

So, almost all accepted applicants hold at least one of Maths, Further maths, or Physics. The dominance of these subjects is not just an admissions pattern – it's a cultural one.

We have built an engineering pipeline that begins at age 14, when students choose GCSEs. And that pipeline narrows sharply at every stage.

Maths and Physics: the gatekeepers

Maths is a facilitating subject. Physics is a signalling one. Further Maths is a privilege.

But access to these subjects is uneven. The pipeline of trainee physics teachers, for example, is at 25% of target. More than half of schools report understaffing in physics.

So, when we say "Physics A level preferred", we are not describing a requirement. We are describing an inequality.

Further maths; the geography of opportunity

Further maths is concentrated in high-attainment schools, high-participation areas, and high-tariff providers.

It is not a subject. It is a postcode.

And when we treat it as a marker of engineering potential, we are not measuring ability. We are measuring access.

If you want to study Engineering at a High Tariff Provider and you are a high achiever, Further maths is for you.

Self-selection: this matters to who chooses engineering in the first place

The dominance of Maths, Further maths, and Physics is not just an admissions phenomenon. It begins at application.

Engineering is uniquely attractive to students who already see themselves as "maths people". But that identity is socially constructed and deeply gendered.

If we want more diverse engineers, we cannot rely on self-selection. We must reshape the invitation.

The most persistent gap: for women

The gender gap in engineering is not significantly closing. In fact, in some ways, it is widening.

There were nearly three times as many non-high-achieving men accepted than high-achieving women in our admissions study.

This is not about ability. It is about culture, confidence, and curriculum.

And it begins long before UCAS.

EngineeringUK calculated 115,000 more girls need to study Maths or Physics A levels to reach equal numbers of male and female students studying engineering and technology degrees

The problem is, they started from here: "The prerequisite for many degrees in engineering and technology is an A level in both maths and physics."

Transparency: what we say versus what we do

Entry requirements are increasingly complex. They vary widely. And they often do not reflect actual admissions practice.

Nearly 90% of engineering courses cite Maths A level. Over half cite Physics. But only a small minority of programmes *actually require* Physics.

This discrepancy undermines trust. It confuses applicants. And it disproportionately deters those who already doubt they belong. It's a bit like "may contain nuts".

Transparency should not be not a marketing lever. It is an equity responsibility.

Published entry requirements: the perception of quality

The gap between advertised and accepted grades raises a difficult question: *Is quality defined by perception, or by evidence?*

Over 100 universities have signed the Fair Admissions Code. But transparency is still uneven. UCAS now publishes historic entry grades – but providers seem to opt out, and again, it's for A level students (unless courses accept enough BTEC students to produce valid data, which they tend not to).

If we want to widen participation, we must first widen clarity.

Beyond A levels: qualifications

A levels dominate engineering admissions. But they are by no means the only route into engineering higher education.

BTECs have been significant, though shrinking. While A levels are the dominant admissions qualification in the UK, in 2023 around 1 in 8 accepted applicants were BTEC holders. However, we saw the BTEC Extended Diploma acceptance route contract by nearly one-third over 5 years, a decline was most pronounced following the Government announcement that public funding would be removed from "low-quality" level 3 courses that overlap with A levels and T Levels. (Incidentally, historic EPC research showed a higher percentage of BTEC engineers five years after graduation remained in sustained employment than those with four As or more at A level).

1 in 5 acceptances held no (or unidentified) qualifications.

Meanwhile, T Levels are emerging – though inconsistently understood. And What about V levels?

The challenge is not the existence of multiple routes. It is the lack of coherence between them. Sure, there is a political and qualification reform lens here, but there is also a lot of work for providers to do to better understand and engage with the emerging system.

(The EPC has provided a guide to T levels, including the mathematical content you can expect a student to have covered, how that compares with A level Maths content, and in what contexts different level 3 qualifications provide the best foundation for studying Engineering. The aim is to better inform the admissions policies of engineering departments when it comes to making offers to T level students. And in May 2026 we will be hosting a webinar with Pearson to input on potential updates and changes to the T Level programmes.)

Doing the same things (creaming A level Maths students) and expecting different results is foolhardy – and perpetuates an uneven provider landscape.

Mixed messages: awareness

Many engineering courses cite A level Maths *in addition to* the BTEC Extended Diploma. But only 1 in 20 BTEC applicants also present A levels.

This is not a pipeline. It is a contradiction.

And T Levels? Some providers list requirements that are literally impossible — "T Level plus Maths A level" for a single applicant.

We cannot widen access if we do not first widen understanding.

System barriers: the forces shaping everything

Behind all of this sit the systemic pressures:

- Funding models that reward low-cost provision.
- Metrics that privilege selectivity.
- Competition that drives up advertised grades.
- Demographics that will soon shrink the core applicant pool.

These forces shape admissions more than any individual decision.

Conclusion: from engagement to enrolments

So where does this leave us?

With opportunity.

If we want a more diverse engineering workforce, we must build a more diverse engineering admissions system. That means:

- Demystifying entry routes.
- Reducing unnecessary subject requirements.
- Making contextual offers meaningful.
- Being transparent about what we actually accept.
- Engaging earlier, more consistently, and more creatively.
- And above all, recognising that every barrier we remove expands the future of engineering.

Because the question is not "*How do we get more students into engineering?*" The question is: *"How do we make engineering a place where more students, from more backgrounds, want to be?"*

Thank you.