

TEDI-London New Approaches Case Study

Main Approach: Project work

TEDI-London

Programmes

BEng (Hons) Global Design Engineering and MEng Global Design Engineering.

New Approach

The transformative approach uses project-based learning supported by an online curriculum.

About the programme

TEDI-London has brought together the outstanding engineering capabilities of Arizona State University (Phoenix), King's College London (London) and the University of New South Wales (Sydney) to establish innovative, high-quality engineering degrees in global design engineering that will create socially aware and globally focused engineers with a distinctively strong design and entrepreneurship skill set. We will develop entrepreneurs who will create wealth and help change people's lives.

The goal is to attract and empower a diverse cohort of capable students – school-leavers through to mature-age career changers, give them the skills to solve complex contemporary challenges and provide employers with job-ready graduates through a flexible, student-led and rigorous learning programme. Addressing the engineering skills gap and both the gender and ethnicity balances is a key goal and we are striving for 50% of the student cohort to be female [1]. The new programme uses international expertise in online learning, coaching and evaluation to develop a unique curriculum which combines experiential learning through projects with self-directed online learning.

Overview of the new approach

Achievement of most learning outcomes in the global design engineering degrees will come from industry-led projects in which students – professionals-in-training – will make products and artefacts from day one of their studies that directly benefit the project sponsor.

Projects will be structured to deliver several of these outcomes with emphasis on different aspects at different stages of the programme. At least two projects will be undertaken each term, with different teams. Larger scale projects, which take place over multiple terms, are built in at levels 6 and 7. Students may come in and out of these projects, taking different roles within the project group at different stages of their programme.

Collaborations with industry will enable students to contribute to global challenges. For example, TEDI-London's partnership with British Land has already resulted in 2019 Summer School students completing projects that will potentially contribute to the Canada Water redevelopment. These projects included a drinking water fountain, purifying Canada Dock water into drinking water, and a community hub to engage citizens from all areas of the community. Spring School students in 2020 will be

preparing a design for the Canada Water development to be a 'dementia friendly community'.

Students can also decide to accelerate their programme of study whilst they are undertaking the course. They would complete their bachelor's degree in two years by undertaking four terms in a calendar year. |

How the programme relates to other New Approaches facets

|The new programme relates to several other New Approaches facets. Diversity and inclusion will benefit from a new approach to student selection. We will select students from diverse educational backgrounds and recruit on their aptitude, attitude and approach. They will be required to take responsibility for their own learning and so the programme will be attractive to a diverse range of students, including women and mature students.

Creativity will be incorporated in the projects as well as the online curriculum, focused on a learning tree which will offer just-in-time learning in both design and technology, potentially offering accreditation through both the Institution of Engineering Technology (IET) and the Institution of Engineering Design (IED).

Interdisciplinarity is inherent in the programme through both the projects, which contextualise the technical learning, and the learning tree, which offers nodes in a variety of disciplines including humanities, social sciences and business. |

Leading and managing the change

The vision of the PLuS Alliance – which brings together the outstanding engineering capabilities of Arizona State University, King's College London and University of New South Wales – was to establish an innovative, high-quality engineering institution in London that specialises in creating socially aware and globally focused engineers with a distinctively strong design and entrepreneurship skill set. This innovative collaboration and the subsequent creation of the new institution TEDI-London, has resulted in the development of a truly unique and disruptive programme.

The leadership of the three founding partners recognised the need for a new kind of engineer to complement the existing workforce and expand engineering opportunities to students from diverse educational backgrounds. In recognising this, the three partners have created an innovative, future-focussed proposition from scratch. The TEDI-London culture, which values courage and disruption, has enabled the development of a truly flexible, transformative programme for a diverse global student body.

Benefits of the new approach

|The new approach will provide a unique and global student experience jointly designed and supported by the three international universities and employers. The new professionally focused degree that reflects community demand and industry needs should enable dual accreditation pathways with the IET and IED.

The programme offers:

- Flexible learning over a 44-week academic year, which will allow students to complete undergraduate degrees over two years, saving them money and helping them enter the workforce quicker.
- New admission criteria in which students are selected by their intellectual capability, passion and attitude to succeed. This approach will provide access for a new, non-traditional type of professional engineer in training.
- An academically rigorous and continuously evolving curriculum that is interdisciplinary and career-oriented, designed to deliver a broader set of skills for engineers of the future. The goal is to produce graduates with technical, contextual, design and business skills.
- A student-led and immersive pedagogy that features more than 50% project- and scenario-based learning, both individually and in groups, complemented by an interactive learning tree that allows our professionals-in-training to take modules as they need them.
- A culture in which students are trusted and empowered and have input and influence over the running of the institution, and in which educators are coaches.

Making the changes: learning points

The transformative approach could only be realised by the creation of a new institution without the rigid structures of an existing university.

Quotation from student

“What excites me most about this learning tree (online curriculum) is when we look at how personalised it is, and the potential created by a system that is customisable according to the way I learn best. Using artificial intelligence and machine learning, custom learning experiences can be created. These experiences can be individualised both within a node and across the learning tree as a whole. That means perhaps I am given different ‘types’ of content, depending on what kind of learner I am.”

2019 Summer School student |

Statistics

- The first cohorts will join in September 2021.
- We’re aiming for an intake of 125 in 2021/22, 150 in 2022/23, 183 in 2023/24 and 276 in 2024/25.
- We’re ultimately aiming for 50% of the cohort to be female.

References and footnotes

[1] Neave, S. *et al* (2018). *Engineering UK 2018 The state of engineering*, [pdf]. Available at <https://www.engineeringuk.com/media/156187/state-of-engineering-report-2018.pdf> |