

Faculty Doctoral Strategies

Faculty of Engineering Sciences – Executive Summary

Our vision is to be recognised as the leading multi-disciplinary Engineering Faculty in the UK, offering a distinctively broad coverage of Engineering with excellent opportunities to integrate with the wider Technology sector through initiatives such as the Department of Science, Engineering and Public Policy and the UCL School of Management. We offer a distinctive doctoral training experience underpinned by clear vision and ambition, alongside an open and collaborative ethos and a broad range of training opportunities. We host a number of successful Centres for Doctoral Training and have a range of financial support mechanisms for doctoral students.

A range of features make the UCL Engineering doctorate a distinctive experience, including:

- Our cross- and inter-disciplinary focus
- Our global reach and range of collaborations at the highest level.
- Our agility and ability to draw on our broad-ranging research excellence to assemble focused teams to address specific research challenges, training needs or grand challenges.
- Our commitment to engaging with the broader community – and especially our work within London
- Our commitment to excellence in training, as shown by our wide range of training opportunities, including cohort-building retreats for new doctoral students.

We are determinedly inter- and cross-disciplinary. In comparison to leading regional competitors, we have a broader range of collaborations with other disciplines, ranging from more traditional partnerships with Physics and Chemistry, for example, to Psychology, Sociology, and Arts & Humanities. Our range of clinical partners underpinning our biomedical and healthcare collaborations is unmatched. Our presence in the Biomedical Engineering / Healthcare Engineering space – particularly in translation of technology to clinical practice – is becoming world-leading, and we work closely with all other faculties in UCL through mechanisms such as joint CDTs, shared studentships, shared training courses and the development of new cross-disciplinary research centres. Our doctoral programmes are supported by an extremely broad programme of training courses – both technical and soft skills – and our collaborations outside UCL provide excellent opportunities for students to experience a range of different research environments.

We operate on a global stage, and benchmark ourselves not only against national and regional competitors, but also against the premier global engineering schools. We collaborate widely at a global level, both in research and in doctoral training. As an example, we engage actively with the Yale-UCL Collaborative Student Exchange Programme, and have recently instigated an extension of the scheme to foster closer collaboration. At the level of individual departments there are numerous examples of international student exchanges and placements organised by specific research groups.

Our doctoral students are supported financially from a broad range of sources: EPSRC DTP, CDTs, industrial support, self-funding, CASE, CSC etc. Our strategy is to increase this funding base by exploiting new collaborations and initiatives such as the Institute of Healthcare Engineering, the Crick Institute and the Turing Institute. These will open up further opportunities for funding from MRC, CRUK, Wellcome Trust and other biomedical funders. We are already well placed, with some Wellcome funding, for example, and our increased presence in these areas will allow us to leverage extra support.

FES has aligned several doctoral training centres deliberately with the UCL Grand Challenges (e.g. Urban Sustainability and Resilience; Medical Imaging), using the Grand Challenges successfully in winning the funding.

We have always, as a matter of policy, sought to align doctoral training policy within the wider UCL framework. Our faculty doctoral education strategy is closely aligned with UCL's core 2034 strategy, and partly supports the Research strategy through, for example, providing studentships in strategically important areas.

Distinctive Features / Best Practice

Master's Level Modules Open to Research Students

At doctoral level, the Faculty's Teaching & Learning strategy is to utilise our very broad range of Masters modules and offer these as technical modules to doctoral students as appropriate. Many of our modules are offered as formal elements in CDT training, while a broader range is available to all doctoral students to take as part of their research training.

A Cohort Approach

Of central importance to our doctoral training is the concept of student cohorts. Bringing diverse populations of research students together as a single community is an excellent way to provide support, to ensure that all students have access to the wide range of facilities we provide, and to provide a stimulating and collaborative environment that brings the best out of our talented students. We build cohorts a number of ways: retreats for first year doctoral students; CDT group activities such as research seminars; student conferences and poster days, and building national networks through joint PhD programmes associated with EPSRC centres.

Cross-disciplinarity and Joint Doctoral Studentships

The faculty aims to foster and encourage cross-disciplinarity. In part this is achieved in a natural, osmotic fashion by the activities embedded within the existing and the new doctoral training centres. These recruit naturally from across the faculty, both in terms of supervisors and student background. However, we know that this is not sufficient, which is why we are deliberately targeting specific cross-disciplinary areas through the allocation of joint doctoral studentships.

"In London, of London and for London"

We are strongly in London, of London and for London. London is at the heart of our strategy through mechanisms such as Engineering Exchange (<http://www.engineering.ucl.ac.uk/engineering-exchange/>), which engages with local communities to make UCL Engineering expertise available to local communities. We match community groups with engineers, working together to find answers and solutions. We specialise in problems related to technology, infrastructure and the environment. This includes issues such as energy, water, waste, information and communications technologies, crime and security (through collaboration with the Metropolitan Police), noise, pollution, buildings, transport, mapping, etc. Doctoral students make a key contribution to this work, and we offer CPD training to help them engage with community projects. Our Institute of Making also makes a hugely important contribution to our engagement with the local community. We plan to further expand our community outreach and engagement activities through UCL East.