TEDI-London Summer School 2022
Resilient cities through participatory urbanism: Engineering urban farming

An exciting London-based opportunity for students to participate in a cross-cultural & multidisciplinary learning experience to explore the potential of urban farming to foster resilient cities.

About Us
TEDI-London is a collaborative, design-led engineering higher education provider founded by the three PLuS Alliance partners – Arizona State University (ASU), King’s College London (King’s) and UNSW Sydney (UNSW). TEDI-London will offer a new type of engineering education for future engineers. Our flexible, project-based programmes will empower students to become independent, curious learners with a global, future-focused outlook and solve complex, real-world problems. As well as offering students an innovative new way to study engineering, the vision has been developed to attract students from diverse backgrounds to consider engineering as an option for study. With a global shortage of engineers, attracting more people to the profession is paramount to ensure engineered solutions to global challenges.

TEDI-London’s vision is to transform engineering education to transform lives – this means preparing students with the skills and knowledge to identify and solve global challenges. Resilient, sustainable, healthy and productive communities are key to society. With 75% of the global population estimated to be living in cities by 2050: Fair and participatory urbanism, which enables efficient, effective and meaningful interactions is key to social cohesion (UNSW City futures research centre).
Why cities? Why urban farming?
Many challenges combine in urban environments, which vary in a global context:

- Cities are major contributors to climate change. Cities are estimated to consume 78% of the world’s energy and produce more than 60% of greenhouse gas emissions, accounting for less than 2% of the Earth’s surface. (Cities and Pollutions, United Nations, www.un.org)
- It is estimated that more than 4 billion people live in urban areas globally. By 2050 it is estimated that this will increase to close to 7 billion. In this same time period, the world’s population of people aged 60 years and over will double; the number of persons aged 80 years and older will triple. (World Health Organisation).
- Unbalanced housing markets and a lack of affordable and good quality housing
- Changes in trends in mobility
- More mixed-use buildings and need for places to enable social connections, mixing living, working and leisure
- Increased demand on ageing city infrastructure
- Climate resilience: Urban resilience and climate adaptation will be key to achieving the UN sustainable development goals and enabling 'inclusive, safe, resilient and sustainable cities'.

Urban space and farming
It is well documented that nature in cities make urban environments healthier and more liveable. Green spaces in cities mitigate the effects of pollution and can reduce the challenges of dense living (such as urban heat islands). Other such challenges, shared by all cities, is the provision of affordable quality housing. The average space per occupant has decreased— in London 1 in 20 homes is considered a 'micro-home', providing less than 37m² (the UK’s national minimum standard). On average houses built in 20010 are 15.5m² smaller than those built 40 years earlier (King’s College Urban Futures research group). This makes urban green spaces critically important for promoting mental and physical wellbeing. Also, people have a fundamental desire to connect to the places they live.

Green spaces can be provided in a number of ways, from parks and recreation, community gardening to 'homesteading' (self-sufficient living). Urban farming, i.e growing or producing food in a heavily populated city, assumes a level of commercial activity in addition— moving the produce from grower to user. There are many different urban farming concepts: from growing on rooftops to underground in tunnels, as part of park to landfill or demolition sites, selling food on local markets to selling to local restaurants. Urban farming can educate and train communities and due to the proximity to users, minimise transport and associated environmental impacts.
Global Generation\(^1\) vision (TEDI-London Summer School 22 partner)
‘GROWING FOOD, PEOPLE AND COMMUNITY FOR A JUST WORLD’

Summer School 2022
TEDI-London’s Summer School 2022 students will be set the challenge to investigate and propose innovative solutions for urban farming in and around Canada Water.

As part of TEDI-London’s role in British Land’s Canada Water Masterplan: https://www.canadawatermasterplan.com, student engineers will be supporting stakeholders, industry and partners in assessing the options for urban farming in Canada Water. These projects will require students to understand the problem through research and data analysis, then conceptualise and work in collaboration with industry and research partners. In collaboration students will work in TEDI-London’s makerspaces to design, prototype and trial engineering solutions for stakeholders in the Canada Water community. All our founding partners have active and varied research strands on cities, from affordable and fair housing access (ASU Stardust Centre) to compact cities and healthy environments (UNSW) to emerging modes of governance and planning (King’s). All aim at enabling inclusive, sustainable and playful cities for productive communities. The project will work with experts across the TEDI-London founding partners, industry and stakeholders to ascertain the viability of urban farming options and offering opportunities to practical implementation.

The Students
The challenges of achieving resilient cities are multifaceted. TEDI-LONDON-London provides the platform for multidisciplinary students to come together to work on a real-life project. Project teams may include engineers, architects, designers, computer and social scientists, medicine, business and performing arts students, as we believe the knowledge from these different disciplines combined will lead to better, more innovative solutions. What is important is that the students value diversity, global perspectives and have a desire to be challenged, to learn from others and to experience working with a broad range of stakeholders. Working in multidisciplinary teams from different countries on a real-world project will give students a unique learning experience and contextual understanding. The experience of working at the interface of world-leading research and industry implementation at the TEDI-London 2022 Summer school will offer an exceptional learning opportunity for students, that in turn benefits the wider engineering and local communities.

\(^1\) Founded in 2004, Global Generation is an educational charity, which works together with local children and young people, businesses, residents and families in Camden, Islington and Southwark to create healthy, integrated and environmentally responsible communities.
Projects to create innovative, feasible and commercially viable options, supporting data and insights to

1) Enabling and maximising participatory urbanism in Canada Water
2) Creating impact for local communities through urban farming
3) Deploying smart technologies
4) Exploring alternative food concepts and associated carbon impacts

Duration, Attendance and Activities
The summer school will be based in London and run in person for 3 weeks full-time: From 4 July to 22 July 2022. Preparatory material will be shared with students throughout June 2022. The work will be broadly subdivided into two stages.

Stage 1: Once in London, students will work collaboratively with industry partners and academic tutors to develop context and design criteria, which will culminate in students and industry partners choosing options for in-depth, focussed work in stage 2.

Stage 2: Students will work in groups to design and prototype their ideas using TEDI-London’s makerspaces. Students will self-direct their learning, engage in peer learning, take part in expert workshops, mentoring and collaborative working with partners and stakeholders. They will develop in-depth, content specific knowledge and engage in project-based group work.

Skills developed will include: multidisciplinary teamworking, research, making, life cycle analysis, evaluation, analytical problem-solving, multi-channel communication, self-reflection, independent thinking, leadership, project management (i.e. planning, design, delivery), market research, stakeholder management, client work and pitching.