

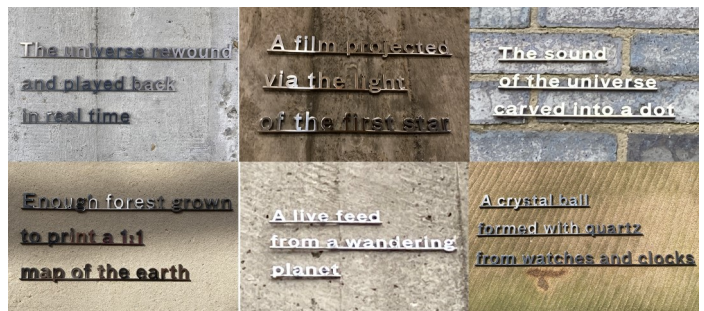


Employ.Eng Newsletter

Issue 6: March 2022

Welcome

Welcome to this issue of the School of Engineering Employer Engagement (Employ.Eng) newsletter! The newsletter is produced by the School of Engineering Placement Team three times a year with the aim to keep our employer partners informed about placements and other student focussed activities that might be of interest.



Artwork from the [King's Building campus centenary \(KB101\) Art Commission](https://ideas.is.ed.ac.uk/). See more at <https://ideas.is.ed.ac.uk/>

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Receiving this newsletter

You can download copies of our newsletters and find information on how subscribe/unsubscribe to our mailing list on our webpage: <https://www.employ.eng.ed.ac.uk/employeng-newsletters>

How to get involved

Placements

We are currently looking for companies interested in hosting chemical engineering placements starting in June/July 2022.

More information can be found in our [Placement Overview Brochure](#)

Please contact Engineering.Placements@ed.ac.uk to discuss possible opportunities further.

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Placements: a conversation with Max Fordham



A placement student contributed to the Fruitmarket Gallery project in Edinburgh- This picture shows how heating has been integrated using large black coloured radiant panels. On the windows, there are actuators to ventilate gallery space naturally.

After 7 years working at Max Fordham as a general building services engineer, Heather Fox's varied involvement with students has allowed her to see first-hand how placement students can be valuable to a company. "It always helps having new life in the practice" she says, "[but] on a practical level, being able to count on a placement student to help us reach our deadlines is incredibly helpful resource wise." Central to the success of this formula, she suggests, is making sure that students are given real life work that is meaningful from a business standpoint. "I think it is a way for the student to get some ownership over their work and feel like they're having a proper impact."

In the wake of the Glasgow Climate Pact's ambitious 2030 Net Zero Goals, this ability to "keep sustainability in mind at every step of the design process" will be key for future generations of engineers. The placement model adopted by Max Fordham is able to foster a "passion for the environment" that Heather Fox says is shared by the majority of students, but also provides practical insights on how to apply that enthusiasm to the everyday challenge of lessening the environmental impacts of buildings and Scottish infrastructure as a whole. "We encourage them to think about how they could solve the problem they are faced with in the most sustainable way." she explains.

Heather was also involved in the 4th year Passive Haus inter-disciplinary design project. The course premise involves bringing together students from Structural, Mechanical, Electrical and Chemical Engineering backgrounds to design a passive house for a real site. The course was shaped around a feasibility study and students were asked to design a low energy impact building and assess different energy options for the building. "The majority of the students really enjoyed this open-ended course and they worked well as a team" she explains. Crucially, the students were also able to learn to pick up a problem and start to solve it within a set timeframe, whilst also working on presenting a solution together. Beyond the pedagogical benefits of this course, Heather enjoyed being confronted with innovative questions and solutions. "Some students were exploring the latest technologies," she told us. "These were things we hadn't heard of or hadn't looked into greatly". Far from being a cause for apprehension, engaging with students enabled her to explore avenues "beyond our normal sphere of work".

When asked what insights she would give to companies thinking of taking placement students for the first time, she recommends prioritising open communication, particularly if students appear to be struggling to gauge when to ask for help. "Check in to see how they are getting on" she advises: "Some supervisors might be apprehensive of the amount of supervision that they need to provide when taking on a placement student. I would say that it is the same as with any new starter. You need to support the student at the beginning but over the course of the placement you need to less and less."

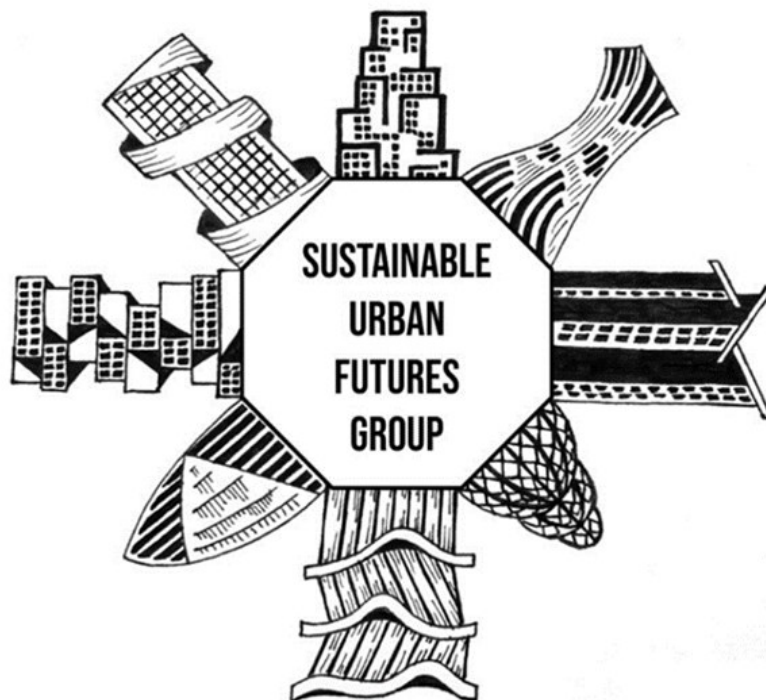
Heather is confident that fostering a good relationship with placement students can be beneficial to the company long term. "If we've created a good rapport, we tend to employ them as new graduates who are ready to hit the ground running." As our conversation draws to a close, Heather concludes "Being involved in Supervisory work is a privileged way of getting to know the student: it allows you to shape the way they work before they leave university".

To find out more about taking on a placement student get in touch with our Placement Team at Engineering.Placements@ed.ac.uk.

Spotlight on Student Societies

In this issue we speak to Benjamin Duncan the founder of the new Sustainable Urban Futures Group.

Sustainable Urban Futures Group



Could blockchain technology really reveal the whereabouts of conflict minerals in global supply chains? Could doctors really use 5G technology to remotely address patients in the developing world? Is Akon really building a 'real-life Wakanda' in Senegal that uses a cryptocurrency called 'Akoin'?

At the Edinburgh Sustainable Urban Futures Group, we provide an interdisciplinary platform to discuss all of these. We want to tackle the big questions in sustainable urban development, planning, supply chain management and more, drawing on expertise from the sciences and social sciences alike. Resilient urban environments are a point of interest for engineers, architects, economists, geographers, politicians, medics and countless others; yet, unlike universities such as UCL (who have a dedicated 'Faculty of the Built Environment'), Edinburgh offers few platforms for people to come together over this shared mutual interest. We want to be that platform, delivering guest lectures, reading groups on the theoretical principles of planning and workshops on more technical aspects such as GIS, CAD and BIM.

We are excited to provide our diverse membership with a holistic, all-encompassing breadth of knowledge, and would love for you to get involved. We are inviting students, industry leaders, business professionals, academics and all other stakeholders to join and collaborate with us. Perhaps you'd like to share some of the steps being taken by your organisation, or a particularly regarded piece of research you have undertaken. If you are compelled by what the society sets out to do, please feel free to email us at edinsufg@gmail.com. We are also reachable on [Facebook](#), [Instagram](#) and [LinkedIn](#).

Benjamin Duncan

Globally Responsible Engineering: preparing our students to address tomorrow's challenges

As part of our curriculum renewal project the first engineering course our students take, Engineering 1 was re-designed. The course organiser, Dr Simone Dimartino, describes the changes that have taken place and how sustainability was embedded into the course.



Dr. Simone Dimartino

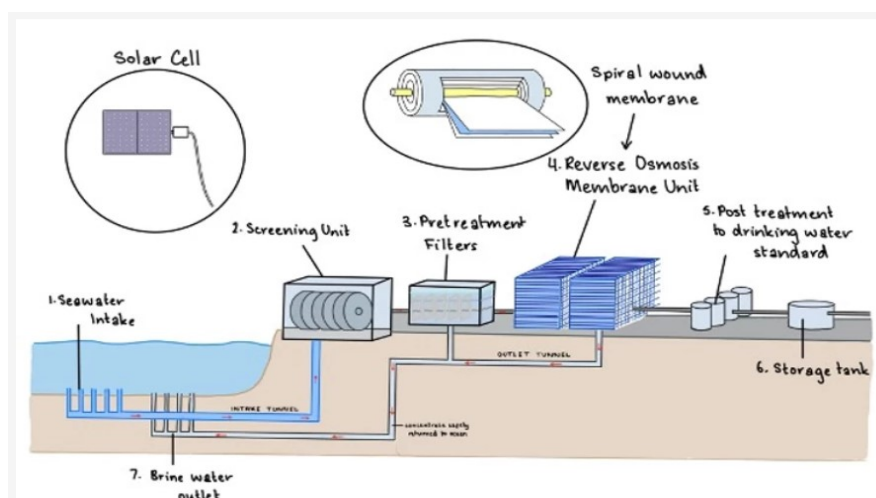
In the engineering profession we often see vision statements like “*Engineers design the future*” or “*Engineering plays a key role to address current and future challenges.*” What do these claims mean in practice for a teaching institution, and how do they fit in light of recent events shaking the world?

On the 27th February, the Intergovernmental Panel on Climate Change (IPCC) released their latest report indicating climate breakdown is accelerating rapidly.¹ Social inequalities are also rising sharply, a bleak example is the armed conflict we are witnessing in Ukraine. Responsible engineering can indeed help address global issues underpinning the environment, the society and the economy. It can truly enable the vision of a sustainable development, one “*that meets the needs of the present without compromising the ability of future generations to meet their own needs*” as stated by the Bruntland report.²

To meet this ambitious objective, engineering education must convey these issues both technically and emotionally. The emotive component is particularly important to shape ethical and professional behaviours in our engineering students, and for them to fully embrace a sustainable development ethos.

As part of the Curriculum Renewal efforts in the School of Engineering, the Engineering 1 course (now Engineering Principles 1, EP1) was recently redesigned to embed globally responsible engineering at its emotional “heart”. To make the students “feel” the need for sustainable development, they are guided through three practical projects where they discuss and reflect on different perspectives pertaining to sustainability and global engineering.

For example, in the “Reflective Engineer” project, students consider options for their future careers, having in mind the UN Sustainable Development Goals (SDG) to produce a positive impact to the world we live in. This offers a chance for reflection and how their ambitions are aligned with the UN SDG.



Engineering Principles 1 People Design Challenge - A 2020/21 team proposed a solar-powered desalination tank to supply coastal communities in northern Peru with safe drinking water. Read more here: <https://edin.ac/37y5jDo>

In the “Rube Goldberg” project, students build overcomplicated chain reaction machines using as many recycled materials and objects as possible – fun videos of RG machines in action [here](#) and [here](#) (more videos with all student submissions in [2020](#) and [2021](#)).

A holistic view of sustainable development is finally appreciated in the “Engineering for People Design Challenge” project. Run in collaboration with Engineers without Borders UK, here students work in groups to address real challenges in real locations in the world. Every year a new case study is proposed, for example this year’s Challenge is located in Cape York Peninsula, a large remote peninsula in Queensland, northern Australia, home to Aboriginal communities. The students are provided with a remit incorporating elements of the local climate and environment, society and culture, industry and economy, as well as history and politics. The students define their own “challenge” in areas as food, transport, energy, digital technologies, built environment, waste, water and sanitation, discuss design criteria and develop solutions with a “systems thinking” perspective.

Overall, our 1st year students observe such project based approach to learning is conducive to building a set of skills such as critical and creative thinking, resilience, communication, and collaboration. Also, EP1 helps them “to work on globally relevant problems”, with the UN SDG as a beacon for reflection and decision making.

EP1 represents a starting point for our students to take the path towards sustainable development and responsible engineering. I would like to wish all of our students the best in this path. They are the engineers in the making that will address tomorrow’s greatest challenges. They are the people who have the duty to reinforce our social foundations while caring for our planetary boundaries.

1- <https://www.ipcc.ch/>

2- <https://en.unesco.org/themes/education-sustainable-development/what-is-esd/sd> (Accessed 06/03/2022)

The University of Edinburgh has appointed Professor Themis Prodromakis to the Regius Chair of Engineering.



Professor Prodromakis will be the 10th holder of the Chair and will establish the [Centre for Electronics Frontiers](#) in the School of Engineering at Edinburgh when he takes up his appointment in May 2022.

Professor Prodromakis said, "It is a tremendous honour to be appointed as the 10th Regius Professor of Engineering at the University of Edinburgh. Edinburgh is renowned for its visionary engineers, whose discoveries and inventions have transformed our world. I am delighted that my group and I are joining this vibrant environment at a time where Artificial Intelligence and new

electronic technologies are destined to improve everyone's lives."

Head of the School of Engineering, **Professor Conchúr Ó Brádaigh** welcomed the appointment: “The new Regius Chair appointment greatly strengthens the Scottish Microelectronics Centre and represents an enormous opportunity for the University. Themis Prodromakis will help us realise our ambition to push the frontiers of electronics through emerging nanotechnologies, disrupting current ways of thinking by innovating advanced energy-efficient hardware solutions for artificial intelligence (AI)”. Read more [here](#).

Interviews for International Day of Women & Girls in Science

To mark UN International Day of Women and Girls in Science, the School of Engineering interviewed two of our students, Alice Patig and Janet Botha - to find out more about why they became interested in science and engineering.

We asked them to share their journeys as engineering students at Edinburgh so far. When asked what the most rewarding experience has been, Alice, who is a final year student on the MEng (Hons) Electronics and Electrical Engineering explains: 'The master thesis at the ETH Zurich was my favourite experience so far. I developed software tools that let national power system operators balance energy supply and demand using distributed energy resources, like solar photovoltaic (PV) or electric vehicles. It was rewarding to spend six months working on developing my skills, code, and ideas and publishing these.'

When asked what advice she would like to share with the next generation of women, 4th year BEng Civil Engineering student Janet Botha, answers: 'Be bold and take a chance, go for it! I did, and I'm so glad I never listened to anyone who told me otherwise. (...) We need more women in STEM, we need you in STEM. Your perspective, experience, and unique insight is what the industry needs to progress and flourish. it's a rewarding and caring industry, so why not get on board?' Read more about [Alice](#) and [Janet](#)'s journey.



Careers Service Update

Advance Notice of the Graduate Jobs Fair Online

The [Graduate Jobs Fair Online](#), open to students from all Scottish universities is Scotland's largest summer recruitment fair, designed to help your organisation connect with and recruit high-calibre, graduating students in a virtual setting. Places are free- ideal way to raise your profile with the class of 2022 and find your next graduate recruit!

June 2022 date tbc. Please email the team to be informed when we open for bookings employers@ed.ac.uk

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