

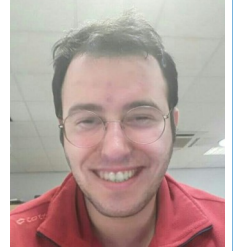
Teaching Excellence Case Study

Enhancing Sustainability Awareness in Civil Engineering Education

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Courses: Civil Engineering (MSc) and Civil Engineering (BSc, BEng)

Student Level: Undergraduate (Level 4,5,6) and Postgraduate (Level 7)



LINKS TO EDUCATION STRATEGY PILLARS

- Community contribution and responsibility
- Embedded employability
- Research inspired teaching

AIMS

As educators, we have a responsibility to increase awareness of **sustainable development**; that is, consuming environmental resources in a way that does not threaten future generations. Learning can be a powerful tool for students across disciplines to develop social responsibility, which is a key tenet of [Education for Sustainable Development](#). For the next generation of engineers, understanding of this is especially crucial, and so there was a strong desire to integrate these themes into the curriculum.

ACTIONS

Students on the courses in question have been able to explore sustainable development and social responsibility in a variety of ways:

- One course team took a **Problem Based Learning (PBL)** approach, in which students apply foundational knowledge of a topic and their own skills to tackle real-world issues, working in groups. For their research dissertation, students were asked to investigate ways of reducing the amount of cement used in the construction industry. Students were able to identify innovative and sustainable composite materials to be used as alternatives, thereby finding a sustainable solution to the problem.
- Meanwhile, students from several of the courses have been **collecting coffee grounds** from a café on central campus. They then take the grounds to the soil mechanics lab, where they mix the grounds with soils. Students are experimenting with building flower pots and benches using this new soil.



IMPACT AND FEEDBACK

- “The door to Dr. Motamedi’s office was always open whenever I [...] had a question about my research or writing. He consistently allowed this paper to be my own work, but **steered me in the right direction** whenever he thought I needed it” - *Dissertation student*
- The soil mechanics lab scheme “is a **unique practice at CU** with regards to social responsibility and education for sustainable development. This, I believe, is not only really good practice but can also be considered as demonstrating CU’s commitment to social responsibility and ESD”- *Dr. Mojtaba Ammari-Allahyari, Academic Developer*

TOP TIPS

- The [University is committed](#) to delivering the **UN sustainable development goals**. Find out more about our [ESD plans](#), or contact acdevunit@coventry.ac.uk to find out more about how these goals can be supported through teaching and learning.
- If students are unfamiliar with the theme of sustainable development, using a **facilitative approach** can help to “guide” them towards a greater understanding (rather than merely “telling” them about the topic).
- **Be patient** with students when overseeing PBL initiatives. Initially they may feel demotivated, but support and encouragement can help them to achieve their goals, and to develop a team approach. Moreover, enabling students to improve and recognise these skills is valuable for employability.

Images by S. Motamedi. Sample preparation for treated soil testing (left), and unsieved/sieved coffee (above).