CREATING AUTHENTIC, INTERDISCIPLINARY, ENGAGING UNDERGRADUATE LABORATORIES

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OVERVIEW OF THE ROUNDTABLE

Monash University Faculty of Engineering have initiated a multi-year project which aims to elevate Monash Engineering Laboratories to world class, and deliver engaging, authentic, industry-relevant experience to our students. This project will consolidate, upgrade and optimise our dedicated laboratory teaching spaces and equipment. Laboratory activities should support and complement the students' conceptual education by providing them with hands-on, authentic engineering experience in an engaging and collegiate way. They should be modern and engaging, and foster teamwork and interdisciplinary interaction. They should use delivery and assessment modes designed to embed transferrable and technical skills into the curriculum to enable students to link theory to practice by applying the concepts they learn to solve engineering problems using industry-relevant, industry scale equipment in a modern environment. This round table will discuss best practice and industry perspectives of university engineering laboratory equipment, spaces and activities.

KEYWORDS

Engineering Laboratories, Practical Experience, Interdisciplinary Learning, Standards 1, 2, 3, 6, 7, 8, 11.

ACTIVITIES

This round table discussion will take the form of a **guided discussion session** covering best practice from academia and industry in the following areas in the following areas:
1. Engineering laboratory spaces – features and foibles
2. The scale (bench, pilot, other) and purpose of laboratory equipment
3. Interdisciplinary aspects of engineering laboratory activities
4. Modes of delivery and assessment of practical student learning
5. Ideas and outline for a follow-up activity based on this discussion

TARGET AUDIENCE

We welcome the perspectives of educators and industry representatives as we try to arrive at a definition and examples of best practice for undergraduate engineering laboratory experience. Anyone who teaches or practices engineering is welcome to attend this discussion. We are keen to hear your academic and industry experiences and ideas to help us implement the best combination of solutions for our students!

FOLLOW-UPS

At the conclusion of the Round Table Discussion, a signup form will be circulated to collect the contact details of those who are interested in further discussion and potentially a working group or similar collaborative activity based on this topic.

BIOGRAPHICAL INFORMATION

Dr Joanne Tanner completed her bachelor's degree in chemistry and chemical engineering at Monash University in 2008. She went on to gain industry experience in control systems design and configuration during her role at Honeywell, and subsequently managed and implemented client-driven chemical engineering research projects at laboratory, pilot and industrial scale with HRL Technology. She returned to Monash and completed her PhD in the area of reaction engineering. She has designed, commissioned and demonstrated several fit-for-purpose, pilot scale reactors and her current research interests include reaction intensification via microfluidic reactors, and resource recovery and biorefinery for sustainable fuel and chemicals production. Joanne is currently a senior teaching fellow in the Faculty of Engineering at Monash University, with a focus on enhancing engineering laboratory experiences for undergraduate and postgraduate engineering students. Her teaching and research interests include sustainable processing, biorefinery, digitalisation in chemical engineering, and the use of pilot scale equipment and processes to enhance engineering education.

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