

Embedding, Teaching and Assessing Teamwork Skills – How hard can it be?

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OVERVIEW OF WORKSHOP

The disciplinary accreditation bodies, the CDIO community and the industries that recruit our graduates expect engineering courses to produce high calibre graduate engineers who are industry-ready. Specifically, graduates are expected to possess strong teamwork, communication and interpersonal skills in addition to their capabilities in the technical domain; and yet these skills are often reported as poorly developed among the graduates (Leydens, 2012).

Given such demands, are we addressing the development of complex interpersonal skills and competencies, within our engineering curriculum? Moreover, how are engineering programs actually tackling this challenge?

Through role play, team formation, team building and group dynamics exercises as well as conflict resolution examples – the workshop is an opportunity to examine the meaningful practice of embedding interpersonal skills in engineering and design curricula.

KEYWORDS

Teamwork, Role play, Standards: 2, 4, 7, 9, 10, 11

DURATION

110 minutes

ACTIVITIES

The workshop activities are designed to achieve the following *overall* objectives:

- Experience some of the teaching activities and strategies that have been used at Curtin University and TU Delft: the MEGA studio, the Urban Redevelopment Game, ITP Metrics (<https://www.itpmetrics.com/>)
- Discuss and understand the challenges that emerge from embedding, teaching and assessing teamwork skills in the engineering curriculum;
- Share the experience in developing learning outcomes, pedagogy and assessment related to the teamwork skills required in engineering education.

The *proposed activities* during the workshop are designed to answer the following questions:

- How do we integrate appropriate pedagogic and assessment activities for the development of teamwork skills alongside mastery of disciplinary knowledge throughout the years of undergraduate study? (*role play activities, case studies*)
- Who is responsible for teaching and assessing these skills? Is it up to the mentors, or do students themselves play an important role? (*group activity and discussion*)
- What can be accomplished pre-graduation, and what is industry's role? (*discussion*)
- What can we learn from various curriculum and teaching models – traditional, PBL, studio/project education, CDIO, or others – to facilitate stronger acquisition of knowledge, skills and attitudes? (*group discussion and sharing*)

TARGET AUDIENCE

This workshop is relevant for anyone who deals, or would like to deal (more intensively) with team work in engineering and design education in an active way.

OUTCOMES

What are the anticipated outcomes of the workshop? What will workshop participants gain by participating in the workshop?

The *specific* outcomes for the target audience are:

- Develop a network of interested academics to work together on challenges related to embedding teamwork skills in engineering education;
- Share the views of different education specialists (engineering academics, learning advisors, communication specialists, curriculum evaluators etc.) on their role and contribution towards teamwork skills development in engineering education.

SPECIAL REQUIREMENTS

A workshop type room with a projector and screen is required.

REFERENCES

Leydens, J. A. (2012). Sociotechnical communication in engineering: An exploration and unveiling of common myths. *Engineering Studies* 4(1), 1-9.

BIOGRAPHICAL INFORMATION

Nicoleta Maynard is an Associate Professor in Engineering and the Director of Engineering Education Development at Curtin University, Australia. In her role, Nicoleta is working with the engineering staff on enhancing industry engagement in the engineering curriculum, scholarship of teaching and learning and research in STEM education. Nicoleta Maynard's work and contributions in educational leadership and teaching innovation have been recognised by a number of national and international awards. She is the recipient of the 2016 Caltex Award for Excellence in Teaching, 2013 Australian's Government's Office for Learning and Teaching Citation for Outstanding Contributions to Student Learning and 2009

Australasian Association for Engineering Education Awards and Engineers Australia Citation Award. Nicoleta's work and research in engineering education has been recognised nationally and internationally with peer review publications, presentations and invitations for participation in technical panels.

Remon Rooij is an Associate Professor in Spatial Planning & Strategy at the TU Delft department of Urbanism. He is the bachelor programme leader of the faculty of Architecture and the Built Environment (1,300+ students). He has a strong interdisciplinary background: a doctorate within the interdisciplinary TRAIL Research School for Transport, Infrastructure & Logistics and an MSc degree in urban design & planning and real estate & construction management. Over the last decade, Remon has become an educational leader for the A&BE faculty with expertise on curriculum innovation, development and renewal, study success, and academic design education. Since 2008, he has (co-)designed several TU Delft engineering curricula at bachelor, master and post-master level. In 2016/2017 he has been advising the Delft Executive Board on engineering education policies, such as the study success of the Delft undergraduate students and the TU Delft education vision for the university's strategic framework 2018-2024. At the moment Remon is leading the development of a faculty wide research on education programme.

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