

Crossing the T - Enabling the Engineer of 2035

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The higher education sector is constantly evolving, and societal expectations are changing. New forms of education and tools are disrupting the sector. The engineering field is also advancing, requiring “T-Shaped Graduates” - those with both technical skills and a broader set of personal and professional skills, as articulated in *Engineering Futures 2035* report (Crosthwaite, 2021), for example. This change is also reflected in the context of the current *Graduate Attributes and Professional Competencies of the International Engineering Alliance* (International Engineering Alliance, 2021).

While engineering programs address transferable skills as required by the current *EA Stage 1 Competency Standards*, most programs will need to make significant changes to nurture the development of better-rounded graduates. Unpacking what these 21st-century engineering skill and aptitudes entail in the context of a contemporary engineering program is one way of addressing the challenge. This will allow educators to develop programs that intentionally develop and assess engineering future skills.

OVERVIEW OF WORKSHOP

The focus of this face-to-face workshop is to confirm or develop a shared understanding of 21st Engineering skills and topics by the participants, unpack how these could be scaffolded through the program and propose possible opportunities for how students can demonstrate attainment of those skills and attitudes. This is a co-creation workshop where the participants will jointly scope engineering futures skills. The workshop will provide consensus-building and benchmarking opportunities and offer a process to unpack those skills.

ACTIVITIES

Participants will work in small groups with paper, post-it notes and online tools.

TARGET AUDIENCE

The target audience is the whole range of engineering educators. No specific prior knowledge is needed. The workshop will assist those involved with curriculum design and program renewal.

OUTCOMES

- Allow participants to benchmark their understanding of engineering futures skills.
- Extend their understanding of how these skills can be scaffolded and assessed.
- Collect data that will be shared with participants to support their own activities.
- As a follow-up (and with interested participants), draft a joint paper documenting the outcomes.

REFERENCES

Crosthwaite, C. (2021). *Engineering Futures 2035 Engineering Education Programs, Priorities & Pedagogies. Australian Council of Engineering Deans, Report.*

International Engineering Alliance. (2021). *Graduate Attributes & Professional Competencies*. Retrieved June 27, 2023, from <https://www.iea.org/assets/Uploads/IEA-Graduate-Attributes-and-Professional-Competencies-2021.1-Sept-2021.pdf>

KEYWORDS

T-shaped graduate, curriculum design, engineering futures skills.

PRESENTERS' BACKGROUNDS

The team of presenters has recently undertaken a significant curriculum renewal project. This workshop is an opportunity to disseminate and showcase the approach. The presenters have a professional practice background but also a track record in technical as well as engineering education research.