ACED AUSTRALIAN COUNCIL OF ENGINEERING DEANS

Practice Guideline **October 2018**

Integrating employABILITY thinking into the existing engineering curriculum

EmployABILITY thinking enables educators to embed employability within the curriculum, motivates students to shape their future work and careers, and generates the data needed to appraise students' thinking about their studies and their futures. This Practice Guideline outlines why employABILITY thinking is crucial to the future of engineering education.

The Vision

Australia's engineering graduates will meet their full potential because they have graduated as *capable and informed individuals, professionals and social citizens*. They will practise and sustain their employABILITY by *finding, creating and sustaining meaningful work and learning across the career lifespan*.

What is the employability challenge?

Over 111,000 students are enrolled in Australian engineering programs. As graduate engineers, they will enter a labour market where the pace of global change driven by advances in digital technology is accelerating. This has had a massive and disruptive impact on business models, customer behaviour and the nature of work.

To establish and sustain their careers, graduate engineers need to engage in life-long employability work. This will involve regular professional learning and the creation of new work opportunities using networks and innovative thinking. More than 20% of graduates will manage part-time and/or multiple roles (ACED, 2018) and many graduates will engage in non-engineering work at some point during their careers.

Are graduate engineers ready to navigate this complex environment? The challenge of negotiating the engineering labour market highlights the need for engineering programs to adopt a systematic and inter-institutional approach to employability development.

Labour market challenges also underpin government pressure to create "employable" graduates, student expectations of tailored programs leading to graduate-level work, and the pressure on academic staff to excel in research, teaching, engagement and leadership.

In addition, there is a pressing need to develop a culture of internships within the Australian engineering community. This is evidenced by Male and King's (2014) finding that only two-thirds of final-year students have secured the industry experience they need.

Higher Education employability initiatives have little impact unless they connect with students, yet most employability development is co-curricular and attracts the students who need it least. In-curriculum initiatives tend to be separated from the engineering studies in which students want to engage. Only when employability and career guidance is aligned with engineering knowledge, skills and practices can it become core business.

Why is employABILITY thinking important?

EmployABILITY thinking is a strength-based, metacognitive approach delivered within the existing curriculum. It addresses the employability challenge by doing things differently rather than doing more.

This is a cognitive, systematic and inter-institutional approach to realising sustainable change in higher education thinking and practice. The resources, guides and self-assessment tool are free of charge for higher education students and educators.

The approach is delivered across the curriculum by the careers non-expert. It overcomes the three ubiquitous challenges expressed by educators:

- *Lack of time*: the perception that embedding employability means doing more;
- *Lack of appropriate teaching resources*;
- *Lack of expertise*: few educators are careers professionals with a nuanced understanding of contemporary industry.

In contrast with many career development or employability initiatives, students engage in employABILITY thinking because it explicitly develops their future lives and work. They start by creating personalised employABILITY profiles using the validated socio-cognitive measure *Literacies for Life* (L4L). The resulting 29-page personalised profile reports are a prompt for analysis and action rather than a score card. Next, students employ the resources to enhance their development and to access just-in-time learning.

The dedicated educator site features student resources, educator guides and expert guides. EmployABILITY thinking data are generated through the online tool and measure, which feature six literacies. Students choose whether or not to include their responses, which are anonymised.

Figure 1: EmployABILITY thinking

Educators can choose to engage with the research and to receive simple, cohort-wide data snapshots for discussion with students (see Figure 2).

Students complete the tool as a required reading or assessment task. They are directed to employABILITY resources at touchpoints such as before or after an industry placement, when working in teams or when giving and receiving feedback. Students are encouraged to review and re-create their profiles each semester.

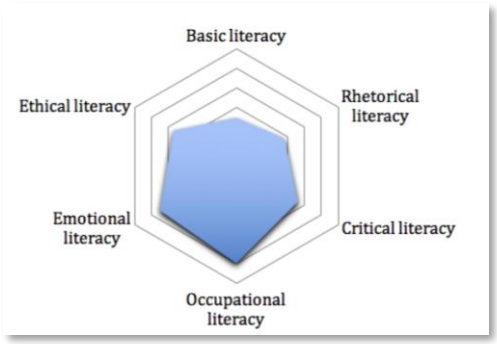

Figure 2: Data snapshots are shared with students

Recommendations

This Guideline supports the adoption of employABILITY thinking to address the employability challenge. The Guideline's recommendations are informed by the findings of research conducted between 2002 and 2018.

- Adopt a program-wide definition of employability which reflects the realities of engineering practice.
- Engage students in employABILITY thinking at least once per semester-long unit. Use touchpoints, which need no extra time, resources or expertise.
- Engage students in the online self-assessment tool once each academic year (15-20 minutes).
- Link individual initiatives to create an integrated visual program titled "Engineer your Future".
- Share good practice in curricular, co-curricular and industry contexts.
- Embed employABILITY thinking into assessment when programs are reviewed.
- Use the data to understand and support students from first year through to career.

Where to from here?

The approach outlined in this Guideline is a research-driven, systematic and integrated approach to embedding employability development across engineering education. It follows a six-step process.

1. Register with the employABILITY educator site;
2. Incorporate the student online self-assessment tool as a required reading, activity or assessment task;
3. Identify and activate a single point in each unit where employABILITY thinking is made explicit. For example:
   a. Teamwork activity or assignment
   b. Placement, industry visit or careers panel
   c. Reflection tasks
   d. Cover letter task
4. Upload the self-assessment tool and resources to LMS;
5. Pass on the process to colleagues who will teach some of the students the following semester; and
6. Encourage students to renew their personalised employABILITY profiles each semester.

References

Australian Council of Engineering Deans (2018, January). Australian engineering education student, graduate and staff data and trends. Canberra: ACED.

Bennett D (2018): *Embedding Employability thinking across higher education*. Canberra: Australian Government Department of Education and Training.

Male, S., & King, R. (2014): Improving industry engagement in engineering degrees. Proceedings of *25th Annual Conference of the Australasian Association for Engineering Education*. 8–10 Dec. Wellington, NZ.

Australian Council of Engineering Deans Inc.

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For more information about **EmployABILITY thinking**, follow the links below or email contact@developingemployability.edu.au.

Educator site: https://developingemployability.edu.au
Student site: https://student.developingemployability.edu.au/
EmployABILITY research lab: http://bit.do/https-www-researchgate-net-lab-EmployABILITY
Community of Practice: https://www.linkedin.com/groups/13553226/