

## Discipline Support Strategy for Engineering and Technology

The Australian Council of Engineering Deans (ACED) has been funded to prepare and implement a Discipline Support Strategy for Engineering and Technology, in collaboration with the Australian Council of Deans of Information and Communications Technologies (ACDICT). ACED and ACDICT represent their respective disciplines in the Australian higher education system by promoting education, research and scholarship.

### Background

The findings and recommendations from the funded scoping projects in *Engineering*, and *Information and Communications Technologies* under the discipline-based initiative scheme, and the insights from other ALTC projects and ALTC Fellowships, provide the core background to the present strategy.

Common areas of concern and identified for action in the recommendations of the Engineering and ICT scoping projects include:

- student attraction and motivation, reducing attrition, continuing low enrolments of women, and the need for gender-inclusive curricula;
- the need for greater engagement of the curriculum (including its design) with industry practitioners, more effective work integrated learning;
- adoption of best-practice pedagogy based on student-centred active learning with real-world (authentic) examples;
- adoption of high quality student assessment, linked to well-defined learning outcomes; and
- support of academic staff to improve their understanding and implementation of best-practice teaching in higher education.

### Objectives

This is a *support strategy* for research and implementation of teaching and learning improvements in engineering and ICT. The overarching aim is to build a stronger community of engineering educators committed to sustained quality improvements in teaching and learning.

A key element of the strategy will be to develop and maintain a map of current initiatives, assist dissemination of their outcomes and broker partnerships to address key issues, including new ones that emerge during the course of the next few years.

### Proposed Activities

The emphasis of the proposed activities is on fostering networks to facilitate new projects to meet emerging needs and communication of project outcomes and relevant global educational developments.

The activities include:

1. *Annual Engineering and Technology Leaders Forum*: for educational leaders in Engineering and ICT to review the outcomes of the scoping and current projects and set priorities for future joint projects in the common areas of concern, listed above.
2. *Annual Student and Graduate Forum*: to engage the Project Management Group with the engineering and ICT student and early graduate body to confirm priority issues, and gain deeper understanding of the dynamics of student choice and engagement.
3. *Project and Community Mapping*: development and maintenance of a database of current projects and their outputs, and of the educational interests and expertise of academics in the engineering and ICT domains. Together with an on-line dissemination strategy (eg using ALTC Exchange) of these resources the project outputs could contribute to the formation of bodies of knowledge in teaching and learning practice in the discipline areas. The staff expertise and interests resource would facilitate formation of special interest groups and project teams.
4. *Key Indicators*: development of quantitative and qualitative indicators for Engineering and ICT. Aggregated data, such as those used in the engineering scoping project is valuable for the deans' councils; disaggregated data to institutional level these data and others are useful for setting local priorities, and forming communities with common interests.
5. *Academic Development*: dissemination of information about short courses and participation in graduate programs in higher education teaching.
6. *Special Interest and Interdisciplinary Workshops*: assist the community to identify and facilitate up to three workshops each year. The workshops will focus on priority areas identified in the forums and mapping activities and extend the scope of current projects into interdisciplinary areas.

## Evaluation

The overall success of these activities will be evaluated regularly. Immediate evaluation measures will include workshop and forum quality and participation, numbers of new project proposals generated, and assessment of the use of the materials posted on the web-site. Evaluation of the impact of the strategy will also need to be made, using agreed measures and targets for staff engagement, curriculum change, increased student participation and success in engineering and technology and student engagement and learning outcomes. In the case of the engineering arm of the discipline area, these measures will link directly to the ongoing work of the recently established Review Outcomes Overview group, as describer earlier. An external evaluation of the strategy will be conducted by an international expert.