

# ALTC

## Discipline Support Strategy

for Engineering & ICT



# DSS

The ALTC has funded ACED, in collaboration with ACDICT, to formulate and implement a long-term plan to support quality teaching in the disciplines of ICT and Engineering.

The Discipline Support Strategy was built directly on the outcomes of two ALTC discipline-based scoping studies: Engineering (2008) Information and Communications Technologies (2009).



# Outcomes of the Discipline-based Scoping projects

## Common areas of concern

- 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;
- support of academic staff to improve their understanding and implementation of best-practice teaching in higher education.

# Outcomes of the Discipline-based Scoping projects

Specific to

- ICT

understanding and strengthening the “teaching-research-industry-learning” nexus.

- Engineering

greater sharing of staff and laboratory resources and best-practice experience between engineering schools.



# Outcomes to be addressed

Activities to support the engineering and ICT academic communities will contribute to outcomes in all areas listed in the ALTC Discipline Support Strategy Guidelines:

- Commitment by discipline leaders to drive learning and teaching change agendas
- Identification of issues and priorities for the disciplines and plans of action
- Embedding of outcomes of ALTC-funded projects
- National benchmarking arising from whole of discipline activities supported by councils of deans
- Increased capacity of discipline and other groups to share resources relating to ALTC-funded projects and activities.

# Activities

- Working with ACED
  - (AaeE) & Discipline Scholars
    - major activity – workshops on ‘improving practice’ for academic staff
- Working with ACDICT
  - (ALTA) & Discipline Scholars
    - major activity – compilation of resources for ICT academics
- Support for ACED ‘engineering education leaders’ and ACDICT/ALTA ‘education leaders’ at their annual meeting/forum



# Workshops

The first workshop (in two 2-day parts with homework) on *Improving Practice in Engineering Education* aimed to:

- engage participants interactively to engage with *student-centred teaching and learning skills and strategies* within an engineering context;
- *model* those strategies within the workshop sessions in order that participants better understand what they look like, how they are implemented and also how they are experienced by learners; and
- offer opportunities for participants to *practice* and develop such skills and strategies through immediate feedback and discussion during the workshop sessions.

# Workshop feedback

- More on “*learning theory*” to provide a more solid basis for their teaching:
  - Addressing theoretical **learning models** and importantly how those models are expressed in teaching and learning contexts
  - Designing curriculum for learning outcomes
  - Designing experiences for student engagement
  - Designing assessments to identify learning outcomes



# DSS –supported workshops

2011

- in Qld (Brisbane)
  - trial for ICT & Eng together
- NSW
- SA

2012

- WA (?)
- regional Qld (?)



# Resource development: DSS web site

- Problems of not duplicating resources available and maintained elsewhere

BUT

- Issues with accessibility of ALTC project artefacts & with ALTC Exchange
- What about other projects their 'owners' are prepared to share?
- What about expertise not disseminated widely?

# Resource development: DSS web site

- Development of database of ICT/Engineering projects – specifically targeting
  - non-ALTC collaborative projects
  - internal/local projects
- Development of database of expertise in Eng/ICT education -
  - to make it easier to locate people with similar educational research interests for collaborative work, funding etc

# Resource development: DSS portal

Aim is to provide introductory material and access to resources for each of these broad areas [some already in production on the web site]:

- 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**;
- **support of academic staff** to improve their understanding and implementation of **best-practice teaching** in higher education.