Training of Engineering postgraduates and teaching assistants as effective mentors and tutors in the undergraduate classroom

This proposal outlines an initiative to be undertaken by the Department of Engineering to ensure that all tutors and demonstrators within the undergraduate program receive high quality and specialised training through a LTC Teacher Induction Program tailored for praxis and group work sessions in the Engineering environment.

1 Project outcomes and rationale

The Department recognises the critical importance of students receiving the highest levels of academic support through their undergraduate studies. To facilitate this, the Department has undertaken a significant realignment of the support of praxis sessions (tutorials, workshops and laboratories). Every praxis session in the program has a senior tutor (DEM2) broadly overseeing the class activities and supported by junior tutors (DEM1) who are in charge of small groups in the class.

The aims of the strategic realignment of the tutor structure are multi-faceted as follows.

- The key aspect is to ensure that all students have strong and ongoing support from a tutor, which they identify as being ‘their tutor,’ throughout the semester
- A further aspect is to ensure that junior tutors have ongoing support from the senior tutor as a mentor providing guidance and advice
- An important focus of this realignment is to maintain a ratio of one group tutor per 10 students for each teaching session
- This approach aims to secure a stream of experienced and qualified tutors for all our programs of study into the future, so that the process will perpetuate incrementally.

The vast majority of Engineering tutors are postgraduate PhD or post-doctoral students with little or no classroom teaching experience. We further recognise that many of these tutors, as postgraduate students, have the aim of becoming academics in their future careers. Thus, the opportunity this proposal offers will both improve their skills as tutors for the benefit of our undergraduate students; and enable the tutor to certification and experience that would be an asset for their future careers.

2 Approach

This project addresses two aspects of the Department’s realignment of casual teaching support.

The first is to establish and maintain a high level of expertise in our tutors with the consequent flow on to student outcomes. Consequently, this program will be offered to all new postgraduates in Engineering, as key ambition of this initiative is to make the successful completion of the TIP program a mandatory requirement for all tutors in the Department.

The second is to provide a mechanism, so that academic convenors have a timely awareness of each individual student’s needs even though the sheer size of unit cohort would otherwise prohibit this. Consequently, a number of parallel structural initiatives have been implemented involving group and senior tutor documentary feedback for each teaching session as well as weekly preparatory briefing and debriefing sessions for all tutors with the relevant academic convenor.

To fully implement this initiative, a LTC Teaching Induction Program (TIP) needs to be developed to address the specific requirements of Engineering praxis. Also the existing cohort of casual staff needs to complete this training.

The principle motivation of this project is to establish a one-to-one link between each student and the unit convenor through a hierarchy from small groups back to the convenor. To work, there needs to be a structured two-way communication channel facilitated by regular interaction with the tutoring staff. This forms a framework for effective management of Engineering praxis with large cohorts that delivers a greatly enhanced student experience. We believe that this initiative will provide a significant contribution to current practice and plan to disseminate the results in an Engineering Education Research forum, such as AAEE.
3 Innovative element

An innovative aspect of this proposal is the approach to address tutor training as a Department policy. Engineering is setting an expectation for all tutors to have successfully completed the customised TIP as a mandated pre-requisite to being employed as tutors.

The second innovation is to recognise an apprentice status for inexperienced or yet to be qualified tutors. The expectation is that all tutors should go through an ‘apprenticeship phase before becoming a ‘group tutor’ or ‘senior tutor’.

The third innovative feature of this proposal is the development of an Engineering specific TIP structure. This aspect may also leverage the additional innovative outcome which could be the development of a TIP for the Faculty of Science.

Finally, the success of this program may initiate a similar Faculty-wide approach to tutor training with potentially significant outcomes for undergraduate students and the career prospects for postgraduate tutors.

4 Project management

The plan is implement the tutor training session in readiness for second semester of 2013.

Liaison and planning with LTC have commenced.

The project is being managed by Prof. Tony Parker (Electronics Program Director) and Daniel McGill (Engineering Program Manager) in consultation with the LTC staff and the Head of Engineering.

A series of focussed feedback sessions will be organised to solicit feedback from tutors and students.

Formal instruments are being developed to assist in the effective interaction with students in the classroom.

5 Budget

Total funding of $19,930 is sought as follows:

Funds are being sought in order to ensure that all tutors in the Department can attend the initial TIP program. Currently there are 33 tutors engaged in the Department and the estimated fee per student for a two-day TIP session is $450 - a total of $14,850.

The customisation of the TIP program is estimated to take 35 hours of LTC staff time – estimated $2,800.

Dissemination at the Engineering Education Research premier conference will require travel ($500), conference registration ($900) and accommodation and sustenance costs (4 days at $220) – a total of $2,280.

Further research papers derived from evaluations of this initial proposal supported by tutor feedback on the effectiveness of the program as well as student evaluations through TED would be valuable in the Engineering Education Research field.