UNIVERSITY OF TECHNOLOGY SYDNEY

2015 First Year Experience (FYE) grants
Embedding transition pedagogies in the curriculum

Application form

Project applications (expressions of interest) must be submitted on this form. Applications must be submitted by **10 am Thursday December 4th, 2014.**

Applications are to be submitted by email to Kathy Egea, UTS FYE coordinator at Kathy.Egea@uts.edu.au .

Project applicant/team leader:	
Name: Terry Brown	Position: Lecturer
Contact email: terry.brown@uts.edu.au	Contact phone no:
Faculty: FEIT	
School/Department (if applicable): EMMS	

Other applicants if team application:

Name:	Position:
Name:	Position:
Name:	Position:

Title of project: *Addressing student diversity in first year mechanical and mechatronics engineering through the design and development of a wider range of online tutorials and quizzes*

First year subject /Transition subject involved:

48610 Introduction to Mechanical And Mechatronics Engineering

Endorsement by Associate Dean (Teaching and Learning)

I ……………………………………. endorse this project application and confirm that embedding of the project outcomes in the subject will be supported by the Faculty.

Signed

Date:

Have you received one or more FYE Grants previously?

☐ Yes – please attach a progress summary (max 1 page) for any 2014 grant that is not yet completed. Reports from earlier grants will be taken into account.

☐ **X** No

Project outline (max 1-2 pages) (See guidelines for detail)

A brief description of the aims and rationale for the project

Anecdotal evidence (hands raised in response to questions in lectures) indicates that there is considerable diversity in the subjects students have studied in high school. SFS open ended responses have indicated a wide range in students perceptions and experiences of lectures from statements like *lectures cover the material too quickly with not enough explanation and assume too much previous knowledge* to *lectures are too slow, over explain everything and could be half as long*. A recommended strategy for contributing to the success of low socio-economic status (LSES) background students is to offer flexibility, variety and choice. This project aims to develop resources to facilitate this. This will not only benefit students from LSES background but will also help alleviate the problem of students' background knowledge diversity. Students with weaker background in physics, maths and engineering studies will have extra resources that they can access to assist them. Lectures can be shorter and more focussed on the more difficult concepts and can include more interactive activities such as group problem solving and multiple choice questions through mQlicker or SPARKplus clicker mode providing immediate feedback for students and lecturer. Diversity in student previous knowledge and experience with engineering is exacerbated by recent programs such as *F1 in Schools* and *Subs in Schools*. The first year engineering subjects have many of the same objectives and approaches as these programs. Students who have participated in these programs are likely to have a significant advantage over those who have not. Schools in low SES areas are less likely to be able to offer their students these programs.

The proposed project aims to begin to address the above issues by developing online tutorial videos specifically aligned to subject matter and designed to assist those with weaker background in maths and physics. The videos will include short animated concept explanations and solutions to textbook problems and exemplars of summative quizzes. There will also be some videos making use of real practical examples such as bicycle and vehicle suspension components to assist students to see the relevance of the concepts. The videos will be used in conjunction with in class quizzes with formative feedback. These resources will be made available through UTSOnline and will be aligned to weekly content.

First Year Curriculum principles for Transition Pedagogy addressed by the project (tick the appropriate box(es) Select the 1-2 strongest principles that you are addressing.

Kift (2009) First Year Curriculum principles for Transition Pedagogy -
http://fyhe.com.au/transition-pedagogy/fy-curriculum-principles

Diversity
The first year curriculum should be attuned to student diversity and must be accessible by, and inclusive of, all students. First year curriculum design should recognise that students have special learning needs by reason of their social, cultural and academic transition. Diversity is often a factor that further exacerbates transition difficulties. The first year curriculum should take into account students' backgrounds, needs, experiences and patterns of study and few if any assumptions should be made about existing skills and knowledge. (Kift 2009)

Provide detail of how the selected principle(s) is (are) addressed in your project.

The set of online resources will provide an array of approaches to support the classroom context, by preparing them with targeted concepts that have been shown in the past to confuse students. The students will be guided to use these resources prior to class, and following class. Targeted quizzes will provide the student immediate feedback on their application of the concepts taught in the online tutorials.

Other University/Faculty/Course/Subject priorities addressed (optional)

Key project activities and timeline, including appropriate activities that engage the overall teaching team (if applicable)

Feb – March 2015: The project leader will develop animated video tutorials with voice over using Doceri online presentation app.
Feb – April 2015: Integration of video tutorial links within Learning Modules on UTSOnline and monitoring of usage
April 2015: Develop Survey Monkey and SFS questions
May 2015: Run Survey Monkey survey and add extra questions to standard SFS
June – Aug: Analysis of student results, survey responses and usage statistics

Your evaluation strategy ie how you will know that the project has been successful, with particular focus on the transition pedagogies that you have chosen, and how will you collect information to improve the outcomes?

Evaluate effectiveness by:
 - monitoring student access to online resources through UTSOnline usage tracking
 - questioning students (by Survey Monkey and/or questions added to standard Student Feedback Survey) about: their background; effectiveness and helpfulness of video tutorials; and, how videos could be improved
 - comparing standard SFS results with previous semesters' results
 - comparing results of summative quizzes and exams with past semesters' results

Project Budget (insert table or spreadsheet if appropriate) and budget justification (remember to add on-costs – approximately 17%) Salary rates:
http://www.hru.uts.edu.au/conditions/pay/rates.html

$42.41 x 20 x 1.17 = $992.39 for research assistant and/or equivalent teaching relief for project leader
(20 hours – academic other – without phd plus on-costs)

Justification:

Activity	Time required
Creation of 7-10 videos	21 hours
Creation of surveys and analysis of survey, usage and results data	7 hours
Preparation of report/presentation of project outcomes	7 hours