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1. Introduction

The UNSW Learning & Teaching Enhancement Plan 2008-2012 lists the following priority goals:

1. Provide high quality programs that support graduates in developing skills and attributes necessary for their role in work and society, both local and global;
2. Enhance learning and teaching environments – virtual and physical, formal and informal – that will support and encourage learning;
3. Develop and support quality teaching through professional development;
4. Recognise and reward quality in teaching; and,
5. Support research in teaching and learning.

The Faculty of Engineering strategic plan states that UNSW graduate engineers should excel in the knowledge, skills and generic attributes expected of graduate engineers. They will also be differentiated from other engineering graduates by very high levels of problem recognition, problem definition and problem solving together with a strong capability in creativity

and lateral thinking. They will have an international perspective and experience.

This Faculty of Engineering Learning & Teaching Plan focuses on the following initiatives to achieve these goals:

- Developing and continuously improving our programs;
- Supporting and enriching the student learning experience;
- Introducing new learning spaces and environments;
- Expanding formal and informal staff development in learning and teaching; and,
- Organising research activity in practice-based engineering education.

This Faculty of Engineering Learning & Teaching Plan is supported by Learning & Teaching Plans in each of the Schools in the Faculty.

This School-level Plan is intended to be a living plan and although it covers two years, there will be a process to monitor progress and revise strategies in the light of ongoing developments and circumstances. The Plan will be revisited to ensure that goals remain relevant and that the strategies are being implemented in ways that are meaningful for the School.

2. The Context of the SPREE Learning and Teaching Plan 2008-2012

The Learning and Teaching Plan should be read in conjunction with:

2.1 Learning and Teaching Enhancement Plan 2008-2012

http://learningandteaching.unsw.edu.au/content/about_us/lt_plan.cfm?ss=1

2.2 Faculty of Engineering Learning and Teaching Plan 2008 – 2012

<http://www.eng.unsw.edu.au/learning-and-teaching>

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2.3 Guidelines on Learning that Inform Teaching at UNSW

<http://www.guidelinesonlearning.unsw.edu.au>

The Guidelines on Learning that Inform Teaching are founded on current research on the most effective learning and teaching environments. Engagement of both our staff and students is a key value underpinning the Guideline.

2.4 UNSW Graduate Attributes

http://learningandteaching.unsw.edu.au/content/userDocs/grad_attributes.pdf

2.5 Other UNSW Learning and Teaching Policies

(<http://www.policy.unsw.edu.au/>)

- Assessment Policy.
- Avoiding Plagiarism.
- Course Outline Template.
- Graduate Attributes Policy.
- Policy on Teaching and Learning Space on UNSW Kensington Campus.
- Policy of UNSW English Language Requirements.

2.6 Basic Principles Underlying the Ongoing Enhancement of Learning and Teaching at SPREE

This plan has been informed by nine basic principles:

1. Teaching is a scholarly and professional endeavour;
2. High quality teaching is recognised and valued as a core activity of the School;
3. The focus of teaching is student learning outcomes and experiences;
4. Learning and teaching occur and are experienced at several levels, including: one to one; class; course; and in the holistic context of a program of study;
5. Teaching is informed and enhanced by research;
6. There is an explicit expectation that teaching and programs are regularly reviewed, based on effective evaluation;
7. Sustainability, equity, and diversity are key elements in the learning and teaching planning process;
8. Teaching must be flexible and responsive to students' needs and circumstances; and,
9. Learning and teaching strategies must be attainable.

3. Accountability and Responsibility

Responsibility for ensuring that these goals and strategies are owned, relevant, valued and supported rests with every academic and general staff member involved in learning and teaching at SPREE, from the individual to curriculum groups and representatives on School and Faculty committees. The achievement of these goals will require a coordinated School-wide approach.

Ultimately, the Head of School is accountable for the pursuit and satisfactory implementation of all the goals and strategies below. The assignment of responsibility for each goal, and strategies within each goal, refers to operational responsibility only.

4. SPREE Learning and Teaching Goals

Goal 1: Develop and continuously improve our programs

Aspirations

SPREE programs will provide our students with a challenging and enriching educational experience. We will produce graduates with strong specialist technical, problem solving and design skills, together with broader skills in management, team-work, innovation and creativity. Our graduates will be well suited to work in a diverse range of careers in the global renewable energy industries, in fields ranging from device and systems research, through manufacturing, systems implementation, to policy and marketing. Drawing on our research and education expertise and industrial connections we will continuously improve our programs and the student learning outcomes.

Approaches

- Develop a vertically integrated design strand through our 4 year BE degree programs, from the Faculty-wide ENGG1000 in year 1 and the second year project in the Photovoltaics and Solar Energy Engineering degree program through to the final year thesis/project – to build graduate capabilities.
- Further improve the first year for undergraduate students.
- Continue development of postgraduate coursework programs
- Develop a coherent set of programs and progression rules so that students can select from a clearly defined yet flexible set of pathways to accredited engineering qualifications.
- Use our research strengths to inform the specialist technical knowledge and student project topics included in undergraduate and postgraduate courses.
- Develop and implement strategies to recruit and maintain high quality learning and teaching staff to facilitate improved delivery and continual improvement.
- Review overall programs to ensure minimal redundancy of material and avoidance of learning gaps.
- Review programs to ensure all students learn competence in generic engineering skills such as algebra, units conversions, problem formulation, etc.

Goal 2: Support and enrich the student learning experience

Aspirations

SPREE aims to admit students with real aptitude, interest and motivation for the Engineering profession. We can exploit the scale and diversity of our Faculty to support a wide range of activities that engage students and enrich their learning experience. We will recognise the contributions that students make to the life of our Faculty.

Approaches

- Provide scholarships, activities and processes to support talented students from a diverse range of backgrounds and socio-economic groups.
- Continue to strengthen links to excellent foreign universities and to source students from countries in which the renewable energy industries are growing strongly.
- Support Taste of Research scholarships.
- Encourage international exchange.
- Engage students in our marketing, mentoring and research activities.
- Continue to provide recognition mechanisms for high achieving students.
- Continue to provide strong links to relevant industry partners.
- Improve the frequency of course offering.
- Grow staff numbers responsibly within budget restraints.

Goal 3: Introduce new learning spaces and environments

Aspirations

SPREE students will have access to practical and hands-on experiences along with collaborative and integrated learning activities. We will provide improved campus learning spaces, formal and informal to facilitate group design projects, equipped with a range of learning technologies and tools, to support development of outstanding professional engineering skills in our graduates.

Approaches

- Improve collaborative learning spaces.
- Provide improved access to computing facilities.
- Develop and improve informal learning spaces that support and enhance individual and group learning opportunities.
- Expand the range of web-based learning technologies and actively develop our expertise in their use for engineering education.

Goal 4: Expand formal and informal staff development in learning and teaching

Aspirations

Our programs will be developed and implemented by a diverse, qualified, experienced and dedicated cohort of staff, both continuing and sessional. We will encourage and assist all staff to use and develop educational techniques and tools appropriate to modern Engineering education.

Approaches

- Encourage and facilitate staff participation in formal and informal training in learning and teaching.
- Provide a range of resources and support for learning and teaching in the Faculty, including workshops, seminars and an interactive web environment for Engineering Education.
- Provide technical support for development and implementation of eLearning and other innovations suited to the delivery of Engineering programs for a diverse student body.

- Improve sessional teaching staff training, support and processes.
- Embed best engineering education practice within the Faculty's learning and teaching support systems.