

Flinders University
Faculty of Science and Engineering
Online Teaching and Learning Strategic Plan and Implementation Strategy

Introduction

This document outlines the Faculty's strategic plan for online teaching and learning. It is intended as a starting point for discussion and implementation within the Faculty, and should be considered as a 'work in progress'.

Mission

The Faculty of Science and Engineering:

- Is committed to excellence in research and teaching in a range of science and engineering disciplines.
- Supports a diverse range of specialist degrees, both within the Faculty and in collaboration with other faculties, in addition to the more general Bachelor of Science degree.
- Services students from first year to postgraduate level in its degree programs, and provides additional and service teaching for students outside the Faculty.
- Is seeking to broaden its student base beyond the Adelaide metropolitan area, into country South Australia, interstate, and internationally.

Environmental Scan

This is an overview of internal and external factors that might influence our future directions:

- Over the last 10 years the Faculty has committed significant staff and financial resources to developing online teaching and learning initiatives.
- Since 1998 the Faculty has had in place a Web/WebCT development team to support online teaching & learning. The team currently consists of 1 full time member and 1 part time (0.6) member. However, the full time member is also responsible for other projects in the Faculty.
- Remote delivery of the major 1st year Biological Sciences topics is well established in relation to students at Pt Lincoln on the Eyre Peninsula. Standard delivery operates in parallel with this initiative by way of an on-site tutor.
- In 2001, the Faculty identified a series of targets for implementing the use of WebCT in undergraduate topics. These targets have been met and even exceeded. This initiative was a forerunner to the University's WebPET project – Web Presence in Every Topic, which is now referenced in the University's strategic plan and was implemented across the campus in 2005.
- Most students enrolled in the Faculty are internal.
- Many lecturers report that the number of students attending lectures has declined in recent years. Possible reasons for this include: (a) many students have significant work and/or family commitments these days; (b) for many topics lecture notes are available via WebCT and as a result many students don't see the need to attend lectures; (c) for some topics lecture recordings are available via video tape or video streaming and as a result many students don't see the need to attend lectures etc.

- Most students have internet access at home
- Many students have access to a broadband connection at home
- Based on the 2005 WebCT Student Survey, students mostly use WebCT for accessing topic material (eg lecture notes, assessment tasks), for communicating with their peers and staff, and results feedback.
- There is significant competition for off-campus students, both in Australia and internationally.
- Flinders University is one of three universities offering science topics in a state with a population of a little over one million.
- School leavers form the greater part of our student body. Mature-age and part-time students, however, make a significant contribution to the Faculty: not so much through their numbers but through the maturity and life experience they bring to our classes. There is increasing conflict between study and income-generating work, even for the traditional school-leaver cohort.
- In most science areas there is a large amount of online student support material being produced and continually upgraded. Traditionally the student text has dominated teaching resources, but increasingly these texts are being supplemented by material on CDROM or on publishers' web sites. Many texts, for example, are now offered together with directly related WebCT-based materials. These materials are generally low cost, when compared to the cost of in-house development.
- Declining funding in the University sector has highlighted the need to investigate new income streams such as full-fee-paying courses.
- Recently (2005, 2006), there has been a decline in new student demand for science, engineering and information technology courses in the Faculty. This trend is evident across the whole University sector.
- There is a relatively high level of technical IT infrastructure and support available in this Faculty.
- The interdisciplinary nature of emerging courses and topics, and the subsequent changes to subject matter arising from this, present new challenges in relation to topic management and delivery.
- Difficulties likely to be encountered as the Faculty continues to promote the utilisation of online teaching and learning resources include:
 - the need for ongoing professional development to support staff in the production and maintenance of online resources
 - the need for ongoing technical support for staff in the production and maintenance of online resources
 - the need to manage the increasing workloads of staff involved in the production and maintenance of online resources.

Vision:

The Faculty is using online teaching and learning to supplement face-to-face teaching with a view to:

- Increasing the quality of each individual student's educational experience.
- Increasing student numbers, retention, and satisfaction.
- Broadening student access to topics.

- Providing efficiencies in delivery, communication and administration (while recognising the significant time investment required by staff in the initial stages of development).
- Being seen by the broader community as contemporary and innovative.
- Offering, in addition to current courses, a small number of targeted specialist degrees – for example Graduate Certificates – if demand can be demonstrated.

Specifically, we can relate our vision to what students, lecturers, administrative & support staff and the institution will be doing in Semester 1, 2008:

Students:

- Will still be attending the majority of their lectures on campus. However, some lectures will be available as online presentations with streaming audio or video.
- Will still be attending tutorials on campus. In some cases, students will be attending more tutorials than at present. For example, where face-to-face lectures have been replaced by online presentations (see above), the timeslots made free by this process will be used for tutorials that encourage deeper learning.
- Will have access to online resources that encourage self-directed, student-centred learning eg formative online quizzes.
- Will have access to online resources made available by textbook publishers and where appropriate the lecturer will integrate these resources into the teaching of the topic/course.
- Will have access to alternative forms of assessment that enable individual students to demonstrate their learning in different ways. Are we doing this?
- Will find a web presence for each of their topics. At a minimum, all topics will comply with WebPET development standards. That is, teaching staff and students will have access to, and support for the use of, the following information or tools:
 - The Statement of Assessment Methods (SAM) form.
 - The timetable for the topic
 - A topic outline
 - References to a text
 - Lecture notes
 - Communication tools (WebCT Discussion and/or Mail tools).
 - A link to the Flinders University Library (including past exams).
 - A link to a student Help and support web page.
- Remote students will, as much as is practicable, have access to the full spectrum of University educational interactions, not just the content. This may involve use of videoconferencing, chat rooms, etc.

Lecturers:

- Will use online resources where appropriate to achieve their teaching aims.
- Where appropriate will use online resources, such as on-line discussion groups and quizzes, to facilitate student-centred learning.
- Will use the discussion tool in WebCT to post topic and/or course announcements of an administrative or teaching nature if a need for such a facility is identified by staff and/or students.
- Will have access to professional development to help them learn how to produce and maintain online teaching and learning resources.

- Will have access to technical support personnel to help them develop and maintain online teaching and learning resources.
- Will be rewarded for the implementation of effective and efficient teaching methodologies including the appropriate utilisation of online teaching and learning resources.
- Will be supported in the trialing of innovative e-learning technologies such the use of personal response devices in large classes.

Administrative & Technical staff:

(This includes relevant staff in the Schools as well as the Web/WebCT development team in the Faculty)

- Will participate in the development and maintenance of online teaching and learning resources as deemed appropriate by the Faculty and the Schools within the Faculty
- Will have access to professional development to help them learn how to produce and maintain online teaching and learning resources

The Faculty:

- Will continue to monitor the costs and benefits of using online teaching and learning resources to supplement traditional on-campus teaching
- Will continue to monitor the costs and benefits of using online teaching and learning resources to support off-campus teaching both in Australian and overseas
- Will provide leadership and vision in the area of online teaching and learning
- Will support staff in their efforts to develop and maintain online teaching and learning resources

Aims of the University for the use of Information and Communication Technologies (ICT) in the education of its students.

The Faculty's on-line teaching and learning strategic plan is informed by the aims of the University for the use of Information and Communication Technologies (ICT) in the education of its students. These aims are reproduced below. They can also be found at <http://www.flinders.edu.au/ppmanual/education/edu.online.htm>

1. promote the development in students and graduates of knowledge and skills that will let them take their place confidently amongst their peers graduating from well performing teaching and research universities anywhere in the world
2. achieve innovative design and content in courses
3. expand the range of sources and forms of knowledge available to students
4. enhance the provision of support services for students
5. support the involvement of certain courses with industry, the professions and the community, resulting in programs that are relevant to and meet the requirements of future employers and open the way to careers in a variety of occupational areas
6. support access by students from a variety of backgrounds to educational programs, including international students, students from rural and remote areas, students with disabilities and students who are studying while at the same time in employment

On-line Teaching and Learning Goals and Strategies of the Faculty of Science and Engineering (figures in square brackets in the ‘Goal’ column indicate alignment with the University’s aims for the use of ICT in the education of its students)

Goal	Strategy	Responsibility for Implementation
<p>To use online teaching and learning resources to enhance student understanding of key concepts and content [1, 2, 3, 6]</p>	<p>Where appropriate, lecturers will employ teaching strategies such as:</p> <ul style="list-style-type: none"> • interactive online tutorials • online quizzes with built-in feedback • interactive online ‘pre-labs’ that may include animations or video clips of laboratory-based or field-based research • streaming video of lectures (international students have commented that repeated viewing of lectures aids their understanding) • personal response devices (‘clickers’) in large classes to gauge student understanding 	<p>Lecturers with support from appropriate School admin./technical staff and the Faculty Web/WebCT development team</p>
<p>To use online teaching and learning resources to enhance student development of generic & professional skills. [1, 2, 3, 5]</p>	<p>Where appropriate, lecturers will employ teaching strategies such as interactive online tutorials and online quizzes to support student learning in the following areas:</p> <ul style="list-style-type: none"> • oral and written communication and presentation skills • numerical skills • data analysis and presentation skills • computer skills • information retrieval, citation and referencing skills • interpersonal and personal skills e.g. teamwork and ethics • personal skills e.g. organisation and time management • problem-solving skills 	<p>Lecturers with support from appropriate School admin./technical staff and the Faculty Web/WebCT development team</p>
<p>To provide an integrated online support system for students [4]</p>	<ul style="list-style-type: none"> • Ensure that every topic in the Faculty complies with the University’s WebPET guidelines which can be found at http://www.flinders.edu.au/webpet/guidelines.html • Encourage staff in the Faculty to exceed the University’s WebPET guidelines where this is likely to improve student learning, retention and satisfaction. This should be balanced against the need to maintain staff workloads at an acceptable level. 	<p>The Faculty Web/WebCT development team will monitor compliance. Instances of non-compliance will be reported to the Associate Head (Teaching and Learning) if they can’t be resolved by discussion.</p>

Goal	Strategy	Responsibility for Implementation
To encourage innovative teaching and learning approaches that improve student retention and satisfaction and suit the lifestyles of modern students [6]	<ul style="list-style-type: none"> • Where appropriate replace some face-to-face lectures with a combination of lecture notes on WebCT and tutorials facilitated by the lecturer • Where appropriate, introduce pod-casting of lectures 	The Faculty Teaching and Learning Committee will host meetings/workshops to showcase innovative practices and encourage their adoption.
To provide for flexible, timely & efficient staff-student and student-student communication. [6]	<ul style="list-style-type: none"> • Use the WebCT 'Bulletin Board' tool to facilitate staff-student and student-student communication. • Use the University's e-mail system to facilitate staff-student and student-student communication. • Use the WebCT 'Results' tool to post marks for assessable activities during the semester. • Provide streaming video of lectures (mature age students and school leavers with work and/or family commitments have commented that lecture videos are important to them in terms of access and equity) • Use personal response devices ('clickers') in large lecture classes 	Lecturers with support from appropriate School admin./technical staff and the Faculty Web/WebCT development team
To provide on-line full fee paying courses to well-targeted markets. [4, 6]	<ul style="list-style-type: none"> • Undertake market research to ascertain the level of demand for the course. • Undertake a cost-benefit analysis before committing any resources. • Liaise with strategic development and quality assurance groups in Central Administration. • Develop a business plan. 	Associate Head (International) with support from relevant Faculty and School staff

Goal	Strategy	Responsibility for Implementation
<p>To develop and manage on-line material in an efficient and sustainable manner.</p> <p>[2, 4]</p>	<p>The Faculty employs two staff at a total of 1.6 FTE. Together they:</p> <ul style="list-style-type: none"> • ensure the roll-over of all topic and course WebCT sites from one semester to the next. This includes the uploading of enrolled students into the sites. • ensure that all topic and course WebCT sites in the Faculty have a common ‘look and feel’ to ensure ease of access and navigation for students on and off campus. • provide ‘just-in-time’ help for academic staff who are editing and/or designing material for topic and/or course WebCT sites. • provide more extensive support to academic staff for targeted online teaching and learning development initiatives. 	<p>The Faculty Web/WebCT development team</p>
<p>To use on-line teaching and learning resources to reduce staff workloads associated with assessment and to provide more timely feedback to students.</p> <p>[1, 4]</p>	<p>Where appropriate, use on-line quizzes with built-in feedback for formative and/or summative assessment.</p>	<p>Lecturers with support from appropriate School admin./technical staff and the Faculty Web/WebCT development team</p>
<p>To ensure the educational quality of on-line teaching and learning resources</p> <p>[6]</p>	<p>Ensure that monitoring of on-line teaching and learning resources is included in:</p> <ol style="list-style-type: none"> 1. the Student Evaluation of Teaching (SET) process 2. the Annual Topic and Course monitoring process 	<p>the Faculty Teaching and Learning Committee</p>
<p>To ensure the usability and sustainability of on-line teaching and learning resources</p> <p>[6]</p>	<p>Establish usability guidelines and monitor on-line teaching and learning resources to ensure that these guidelines are met</p> <p>Develop sustainable models for information management (e.g. database driven web-based information).</p>	<p>the Faculty Web/WebCT development team</p>