SCHOOL OF MECHANICAL AND MINING ENGINEERING
TEACHING & LEARNING COMMITTEE

Meeting 1/2010  17 February 2010  Not for general publication

Present: Dr Mehmet Kizil (in the Chair), Professor Andrej Atrens, Dr Mathew Cleary, Ms Cristina Ghiculescu, Associate Professor Lydia Kavanagh, Professor Ross McAree, Associate Professor Andrew Morrell, Mr Douglas Malcolm, Associate Professor Martin Veidt, Associate Professor Mingxing Zhang. Mrs Lamb.

Apologies: Associate Professor Vaughan Clarkson.

Minutes: The minutes of the meeting held on 16 September 2009, having been previously circulated, were taken as read and confirmed.

1. **Errors in Examination Papers**

   Members noted that the report regarding errors in Semester 2 2009 examination papers had not yet been circulated. Members noted the School took steps to reduce errors in the previous semester and these would be reviewed once the Semester 2 2009 report was made available.

2. **Membership and Terms of Reference**

   Members endorsed the membership and terms of reference for the School of Mechanical and Mining Engineering’s Teaching and Learning Committee and noted the roles and responsibilities of school teaching and learning committees within the Faculty. It was agreed that the Secretary would map the roles and responsibilities to the terms of reference and identify any items that were not covered in the terms of reference.

3. **Teaching and Learning Grants**

   Members discussed the need to be more proactive in identifying funding opportunities for teaching and learning grants. It was agreed that these opportunities be identified and placed on a calendar.

3a. **Enhanced Student Charge funding (ESC) – Undergraduate Teaching Space (2011)**

   The Deputy Vice-Chancellor (Academic) had called for submissions for the development or refurbishment of undergraduate teaching spaces. The issue had discussed by the School’s Advisory Team prior to Christmas and subsequent discussions with the Faculty’s Associate Dean (Academic) regarding Faculty priorities resulted in a proposal from the School to renovate the TV Krok Room in the Mansergh Shaw Building. Members noted that the proposal was not listed in the Faculty’s top two priorities for 2011 funding. However, the Executive Dean had signalled that the project would be held over for consideration in a later year. Members agreed that a role of the Committee was to review projects on an annual basis to recommend priorities to the Faculty.

3b. **UQ 2010 Strategic Teaching and Learning grants**

   The Deputy Vice-Chancellor (Academic) had called for submissions for the UQ 2010 Strategic Teaching and Learning Grants. Funding from these grants was used to fund projects that aimed to enhance student engagement through the implementation of high impact learning practices. The DVC (Academic) funded up to $25,000 and the School, Faculty or other outside agency was expected to fund at least 25% of the total requested funding. Members reviewed the guidelines for the scheme and noted that it was advertised within the School via the Newsletter with an internal closing date of 8 March 2010. The Head of School also agreed to provide the required co-contribution for successful projects.

   It was suggested that the 2007 accreditation documentation be reviewed for items that might be required and which had a fit with the guidelines for these grants. In addition, it was suggested that Associate Professor Kavanagh’s competency testing be extended to later years of the Bachelor of Engineering program.

   It was **resolved** that -

   (i) members discuss funding opportunities with their colleagues; and
   (ii) the Teaching and Learning Committee meet the week of 15 March to rank applications for consideration by the Head of School.
**3c. Australian Learning and Teaching Council grants (2010)**

The Australian Learning and Teaching Council provided funding to support innovation in teaching and learning practice in higher education. The 2010 ALTC Grants scheme accepted applications through its three grants scheme programs throughout the first half of 2010. Full details on the funding priorities and guidelines, as well as dates for submission are available on the University’s Teaching and Learning website. Members noted that these grants had been advertised in the School’s newsletter. It was noted that successful projects tended to be those with previous funding from the institution and collaborative projects across universities (e.g. Power Generation, Mining Education Australia).

**4. The University of Queensland Annual Student Feedback Report (2008) and other student survey data**

The Teaching and Educational Development Institute had prepared a report for the for the Faculty’s Associate Dean (Academic) following on from the Faculty reorganisation in 2009. The report allowed for courses taught under the former School of Engineering to be analysed for each of the three new schools which were formed when the School of Engineering was disestablished.

In 2008, had it been in existence, the School of Mechanical and Mining would have offered 37 undergraduate courses, ranging in class size from <10 to over 501 (Table 1, page 6) with a Faculty-wide average of 121 students per course. By way of contrast, the School offered 67 postgraduate course, ranging in class size from <10 to 150 with a Faculty-wide average enrolment of 16 students per course.

It was also noted that the University would change its survey instrument from 2010 and surveys would be required for all courses each time they were offered.

**iCEVAL**

iCEVAL results were presented on a percentage agreement which was the proportion of respondents who agreed or strongly agreed with the survey statement. The University had mandated that 70% agreement was the minimum accepted standard with 80% as the expected standard. There were 16 items and over 5,000 responses to each item.

Across the Faculty, no items reached the 80% expected standard and 5 items fell below the minimum standard and targeted initiatives were suggested by TEDI to improve these across the Faculty. Items below with an * were below the minimum standard across the University –

- “Helpful feedback on assessment was given within a reasonable time to facilitate further learning;
- I felt I belonged to a group of students and staff engaged in inquiry and learning in this course;
- *I have achieved the graduate attributes which the course aimed to develop…;
- Course materials and resources helped me to learn in this course;
- The course was well administered.”

There were some differences across year levels with first year students happier with learning objectives and teaching facilities. The pattern generally held at the School level with the lowest satisfaction on feedback on assessment.

Members discussed how to improve the questions on the provision of feedback. It was suggested a key item is to manage student expectations on what feedback is and when to reasonably expect it. It was noted that staff tended to not post students’ results as quickly as the students might expect and possible solutions might be to post model answers or use a Blackboard discussion forum. Staff should still strive to complete marking of pieces of assessment as soon as was practicable.

Semester 2 2009 iCEVAL data for the School were also available. Scores of less than 3.50 are deemed low (and coded red) and good scores are coded green. With respect to low scores, it had been past practice in the School of Engineering to contact the course coordinator when the answer to Question 20 “Overall, how would you rate this course?” was low. The following course was rated ‘low’ for this question –

- MECH3100 – Mechanical and Space Systems Design (Coordinator: Professor Richard Morgan);

Members noted that there were only 9 responses to the survey. This was the third year design course, undertaken by Mechanical and Mechanical and Aerospace students, and processes have been put in place to address this for 2011. This included a change to the dual major study plan.
4. **The University of Queensland Annual Student Feedback Report (2008) and other student survey data (cont’d)**

**TEVAL**
There were 11 TEVAL items with about 6,000 responses per item. The Faculty reached the expected standard on 80% on 4 items –

- “The lecturer produced classes that are well organised;
- The lecturer treated students with respect;
- The lecturer seemed to know the course well;
- The lecturer communicated his/her enthusiasm for the course.”

There were 4 items where the Faculty fell below the 70% minimum standard –

- “The lecturer presented material in an interesting way;
- *The lecturer gave adequate feedback on my work;
- The lecturer gave explanations that were clear;
- *The lecturer helped me to improve my learning skills.”

The pattern generally held at the School level although the School was the only one in the Faculty to fall below the 80% mark for ‘the lecturer communicated his/her enthusiasm for the course’ (78%).

**Australian Survey of Student Engagement (AUSSE)**
Members also reviewed the AUSSE and noted that because of the way the data were aggregated (at the ‘narrow field of study’), data were not available at the school level. Of the 963 respondents at UQ, 137 nominated a narrow field of study that was attributable to the Faculty. All of the Faculty scores were within the required 5 scale points of the UQ scale scores.

**CTQA**
Members noted the response from the School to the CTQA data (sent in late 2009). It was agreed that the key issues and concerns raised should be discussed at a later meeting.

4. **ResTeach**
Members noted 2010 ResTeach appointments and were briefed on the scheme which was funded by the Deputy Vice-Chancellor (Academic). Applications for 2011 funding would be called for later in 2010.

5. **Course Changes**

5a. **Power Generation Courses**
Members endorsed the following changes to the course catalog in 2011.

- MECH7260 (odd) – *Gas Plant and Systems*: amend catalog to offer in Semester 2;
- MECH7350 (odd) – *Rotating Machinery*: amend catalog to offer in Semester 1;
- MECH7650 (even) – *Regulation Compliance & Safety*: amend catalog to show ‘not offered in 2011’.

5b. **External Offerings**
Members noted that the following courses were also now offered externally from 2010 with executive approval having been obtained from the Head of School and Associate Dean (Academic) –

- MINE7006 – Project or Thesis II (semester 1 only)
- MINE7007 – Project or Thesis III (semester 1 & 2)
- MINE7008 – Project or Thesis IV (semester 1 & 2)
- MINE7027 – Project or Thesis III (semester 1 & 2)
5. Course Changes (cont’d)

5c. MATE7001 and ENGG7600 – change of Semester of offer in 2011

Members endorsed the following changes to the course catalog from 2011–
- MATE7001 – Environmental Performance of Materials: change from Semester 1 to Semester 2
- ENGG7600 – Advanced Engineering Practice: change from Semester 2 to Semester 1.

5d. Change to Mechanical and Aerospace courses from 2011

Members endorsed the proposal to change the design courses in the Mechanical and Aerospace Engineering dual major. It is proposed that students in Mechanical and Aerospace take AERO4100 (Aerospace Design and Manufacture) in place of MECH3100 (Mechanical and Space Systems Design) in the second semester in year 3.

The Mechanical and Aerospace Engineering dual major had a substantial design/systems focus. Students take a course with a design/systems aspect in each semester in years 2 and 3. All students were required to take AERO4100 (Aerospace Design and Manufacture) and students who specialised in the “aeronautical stream” also took ENGG4000 (Introduction to Systems Engineering); however “space stream” students did not take ENGG4000. However, students in both streams could also take MECH4552 (Major Design Project) in their final year in place of doing a thesis. Thus students could graduate with #16 in design/systems courses.

The current structure of the dual major did not allow “aeronautical stream” students to take courses such as Hypersonics, Space Engineering and Computational Fluid Dynamics or for “space stream” students to take courses such as Flight Mechanics and Aerospace Materials. By replacing MECH3100 with AERO4100 in the core of the plan, it opened up the possibility for students to take one course from the other stream and whilst still maintaining a strong design/systems aspect.

Members noted that the AERO4100 class would be large (all third and fourth level students would take the course in 2011).

It was resolved that from Semester 1 2011–
- MECH3100 be renamed “Mechanical Systems Design”;
- MECH3100 be moved to Group C electives in the Mechanical and Aerospace dual major;
- AERO4100 be moved to the list of compulsory courses under Year 3, Semester 2; and
- the Timetables Officer adjust the predicted enrolments to double the current number to ensure an appropriate sized venue for teaching.

5e. Introduction of a #8 project into the Master of Engineering (Engineering Science) for Mechanical and Mechatronic fields

There were several options for how the project course could be taken in the Master of Engineering (Engineering Science). Essentially, students can generally choose from a #4 project (to be taken either in a single semester or over two semesters) or an #8 project (to be taken over two semesters). However, #8 projects were not available for students in the fields of Mechanical, Mechatronic (and Civil Engineering) was available in the fields of Materials and Chemical Engineering.

Members considered the following -
- was it educationally sound to have #8 of project in the #16 ME program?
- would a larger project compromise the viability (in terms of enrolments) in elective courses in the ME?
- should there be consistency across all fields in terms of the size of the project that students can take?
- what sort of assessment and examination regime was appropriate for the larger project.
- should there be 2-3 examiners reviewing each thesis?
- should a seminar be included in the assessment.

It was agreed that the item be considered further at the next meeting.
5. **Course Changes (cont’d)**

5f. **Change of course code and discipline descriptor – MECH2301**

Members agreed to change the course code MECH2301 (*Structural Mechanics*) to MINE2123 from Semester 1 2011 to better reflect the mining focus of the course, in particular the tutorials and assignments. Students would continue to share lectures with mechanical engineering students but the tutorials had a mining focus.

6. **University-wide calculator scheme**

The University’s Assessment Sub-Committee sought feedback from faculty and school teaching and learning committees on the planned introduction of a University-wide calculator scheme. The scheme was an extension of that currently used by the Faculty of Engineering, Architecture and Information Technology (EAIT) and that used by the School of Economics.

The proposed scheme was as follows –

1. The Casio fx-82 series calculator (any model) would be the University’s preferred calculator.
2. Students who had an alternative calculator could have it assessed against the University’s list of other approved calculators and if approved, a tamper proof label would be fixed to the calculator.
3. If a new type of calculator was introduced, it would be assessed by two nominated members of academic staff and added to the list of approved calculators if relevant.
4. The student centres (all campuses) would administer the scheme and a deadline for approvals would be set each semester (which is currently the case in EAIT).
5. Course coordinators would be required to continue to include relevant details in the electronic course profile.
6. Course examiners would continue to add the relevant detail to the examination coversheet.

Members considered the implementation of step 6 which would permit the examiner to approve calculators during the examination particularly when the examination was held in multiple rooms or for large numbers of students. It was agreed that this would be difficult to implement in a fair and equitable manner.

It was resolved that –

feedback on discussion be provided to the President of the Academic Board.

7. **Teaching Awards**

Each year as part of teaching and learning week the faculties and university recognised outstanding contributions to teaching and learning with a series of teaching and learning awards. These awards celebrated teaching excellence, programs that enhanced student learning and outstanding contributions by individuals and teams to student learning. Awards to staff in the School were –

**UQ Awards:**

**“Professor John Simmons**

*Professor John Simmons received a university citation that recognises an outstanding lifetime contribution to student learning through significant and sustained excellence in teaching that has inspired, challenged, and encouraged University of Queensland engineering students over four decades.*

**Mining Engineering and Mining Education Australia**

*Dr Mehmet Kizil, Professor Paul Lever, Professor Andrew Scott and Dr Saiied Aminossadati accepted on behalf of the mining engineering team a UQ award for programs that enhance learning.*

**UQ Engineering and Engineers without Borders Design Challenge**

*Professor Caroline Crosthwaite accepted a UQ award for programs that enhance learning on behalf of the large team of UQ engineering and EWB staff involved in delivering the EWB Design Challenge projects in the foundation first year engineering course Introduction to Professional Engineering.*
7. Teaching Awards (cont’d)

EAIT Faculty Teaching Awards:

Professor Arne Dahle
Professor Arne Dahle is an enthusiastic lecturer who has consistently received student acclaim through high scoring teaching evaluations and numerous Deans Commendations over many years of successful teaching, including a large first year engineering course.”

8. School Teaching and Learning Awards

Members discussed the possibility of offering teaching and learning awards within the School as an additional way to foster, support, and acknowledge excellence in teaching and learning. It was important for the criteria used for school awards to be consistent with Faculty, University, and national awards.

Two annual awards were proposed: Award for Excellence in Teaching and Award for Enhancing Student Learning. The awards could be paid from the School’s Teaching and Learning Budget. [Subsequent to the meeting, it was noted that the amount of $5,000 had been set aside in the budget for teaching awards in 2010.]

The nomination process also required consideration. While self-nomination would be possible, other staff and students could also nominate colleagues for awards. Other sources of information to identify staff who might be encouraged to apply for awards was by review of the Faculty’s ‘Most Effective Teacher’ nominees which were made by students who received ‘Dean’s Commendation for High Achievement Awards’ and/or through identification of consistently high iCEVAL scores. It was suggested that students be advised of the ability to nominate staff outside of the ‘Dean’s Commendation for High Achievement Awards’ as well.

An important facet of the application process would be to keep it simple and to ensure that staff were not required to address more or different criteria than they would do for the higher level awards. It was also important to devise a suitable timeline that dovetailed with these other awards and ensure that staff from the School were nominated for all relevant awards.