Reforming the Administrative Structure to Maintain Continuity in ABET Assessment and Evaluation: NUS CE’s Experience

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Outline Of Presentation

• Brief history of NUS CE Dept
• Previous dept admin structure
• Why need for ABET
• Goals for reforming admin structure
• New ABET aligned admin structure
• Key committees and their functions
• Lessons from success and difficulties faced
Brief History of NUS CE DEPT

• The CE Department was formed in 1970 with the following Mission:

"To be the premier institution providing quality engineering education and leadership in research, development and application of technology for the advancement and well-being of the nation"

• Program was accredited by UK Joint Board of Moderators through ICE/IStructE

• Most recent accreditation exercise under JBM was completed at end of 2000, with accreditation granted from 2001 to 2005
Prior Admin Structure

- Organized along task-oriented lines
- Three Deputy heads for:
  - Admin/operations
  - Academic/teaching
  - Research
- Four Group heads for each of four CE academic discipline groups
- Result is many small committees for many ad-hoc requirements unrelated to mission, learning objectives and outcomes of CE program
Need for ABET

- Singapore Free Trade Agreement (FTA) with USA requires mutual recognition of educational programs
- Singapore being a small nation needs to have its degree program accepted worldwide
- Desire graduates to be able to work in a competitive global environment
- Enable our graduates to pursue post-grad education in advanced institutions
ABET Criteria 2000
The Paradigm Shift

New Philosophy

- Institutions and Programs define mission and objectives to meet the needs of their constituents
- Practice of continuous improvement
  - Input of Constituencies
  - Process focus
  - Outcomes and Assessment linked to Objectives
- Programs demonstrate how criteria and educational objectives are being met
Goals for Reforming Department Admin Structure

• Emphasize “continuity” for process of evaluation and improvement
• Make ABET’s requirements integral part of Department operations
• Divest ownership of ABET to entire Department to encourage maximum awareness and participation
New Department Structure for ABET Process

Dept Management Committee

ABET Committee

- Curriculum/Teaching Committee
- Enhancement Program Committee
- BOE - Board of Examiner
- Public Relations/Alumni Committee
Roles and Functions

- **DMC** – Executive, policy and decision making body, consists of Head, 3 Dy Heads, 4 Group Heads
- **ABET** – to advise DMC and coordinate all matters relating to ABET
- **Curriculum/Teaching** – Develop and maintain curriculum to achieve program objectives and outcomes
- **BOE** – Coordinate evaluation, mentoring, and monitoring of student, and collating results of exams and CA for tracking student progress
Roles and Functions

• Enhancement Program – focus on co-curriculum activities outside of formal instruction to give students exposure to profession, society and the real world

• Public relations/alumni – outreach to constituencies (alumni, employers, community) to provide feedback and independent assessment of relevance of program objectives to the real world
Performance of new structure

• DMC with help of ABET committee define scope and terms of reference for each of the 4 key committees
• Committees met and refine scope to feedback to DMC
• Quarterly meetings of all committees and quarterly reporting by chairman of each committee to DMC
• Based on each committee quarterly report, DMC provide responses and decisions on actions to be implemented to improve program, if necessary
• Example of typical quarterly report will be discussed in lecture
<table>
<thead>
<tr>
<th>Name of Committee/Laboratory/Centre:</th>
<th>Curriculum Committee</th>
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<tbody>
<tr>
<td>Name of Reporting Staff:</td>
<td>A/Prof Richard Liew</td>
</tr>
<tr>
<td>Date:</td>
<td>8 Oct 02</td>
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</tbody>
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**Summary of Activities in Last Quarter (2 Aug to 8 Oct 2002)**

Richard Liew requested that the Department’s ABET website to be revamped by indicating clearly the latest information on curriculum and removing outdated information. The website was then revamped by G M Hong.

To facilitate the collection of relevant course materials, all professors have been informed via e-mail of the items that they should submit to the Department office, for every module being taught:

(a) course outline(s) including objective(s) and outcome(s)
(b) class/lecture notes/quizzes/projects/lab reports etc
(c) class assignments plus selected samples of students’ homework with lecturer’s comments, whenever possible
(d) problem based learning assignment.
(e) Whenever grading of assignments is not feasible, for example for classes that are too big (too many students), suitable comments should be included.

These would be collected for each module and filed according to subject code in assigned cabinets in the Department office.

Modules would be evaluated by the respective Group representative, so that feedback can be obtained for ABET’s requirements on Curriculum.

**Plans for Future Activities**

R Liew will send email to remind staff who have not responded to the above.

- Evaluation – End November 2002
- Suggest for improvement in December 2002/ January 2003

**Problems & Comments**

Some staff did not respond to the email requests for submission of course materials. The response rate is about 70%. It would be necessary to phone them up individually.

**DMC's Comments**

- Yati would assist the Curriculum Committee to follow-up on lecturers who have yet to submit their course materials.
- The Committee would need to put forward an effective method for evaluating the modules and programme outcomes based on the materials collected.
Lessons Learnt

• New admin structure provide coordinated effort of Dept for the ABET process
• Key areas of concern in Criteria 3(a-k) are addressed by focus key committees
• With system of quarterly reporting, DMC is much in control of the progress of Dept in implementing ABET requirements
• All staff members are brief on ABET progress twice yearly in formal Dept meetings