Response Thresholds Assessment

March 2009 (updated May 2009 to include DAC re-assessment results)

The Response Thresholds as adopted by the faculty (shown in table below) were reviewed by the Departmental Advisory Committee.

Tool	Scale	Threshold
Student Portfolio Assessment Rubrics	0 – unacceptable 1 – marginal 2 – acceptable 3 - exceptional	Combined score for any outcome below 2.0 invokes inquiry.
Senior Exit Interviews	1 – poor 2 – not well 3 – fairly well 4 – well 5 – very well	Combined score for any outcome below 3.0 invokes inquiry.
Alumni Surveys - Objectives	1 – poor 2 – fair 3 – average 4 – good 5 – excellent	Combined score for any objective below 3.0 invokes inquiry.
Alumni Surveys – Strengths and Abilities	1 – poor 3 – average 5 – strong	Combined score for any objective below 3.0 invokes inquiry.
Employer Surveys	Not Quantitative	DAC members and faculty review employer comments
FE Exam Results – Overall Pass Rate		DAC members and faculty review results. Scores below national average invokes faculty inquiry.
FE Exam Results – Individual Topics		DAC members and faculty review results. Scores below national average discussed by faculty for potential response. (Not all lower than average scores require responses, or rather, the decision may be to not respond in some cases.)

While the DAC had no problems with the numerical values assigned by the faculty, there were questions about what was implied by “invokes inquiry.”

An “inquiry” involves faculty as follows:

When the average score from any row on any outcome scoring rubric (for example) falls below the threshold for that assessment tool:

1. The faculty take a look at the data, the scores on the assessment rubric, and the comments made by the individuals who assigned the scores (if any).

2. The faculty determine an appropriate action to take, and a process to assess the effectiveness of the action.
3. The Department Head is responsible for implementing the desired action, and assessing the result.

We have had two examples over the years where a response has been initiated:

Low Scores on Heat Transfer Section of FE Exam
We noticed that our students were scoring below the national norm on the heat transfer questions on the FE Exam. The first response was to do nothing, but monitor future exam results. The next year we saw the same problem. The faculty response was two-fold:

1. To incorporate a heat transfer experiment into the senior unit operations laboratory to give seniors a chance to review the topic prior to taking the FE Exam.
2. To split the 4-credit Fluid Flow and Heat Transfer course into two 3-credit courses; one on Fluid Mechanics, and one on Heat Transfer.

The result was a noticeable improvement in student performance (well above the national average) on the Heat Transfer questions on the FE Exam. The improvement was noticed after the seniors had the heat transfer experiment, and before the juniors in the heat transfer course had an opportunity to take the FE Exam.

Little Evidence of Safety Considerations in the Senior Design Reports
In Spring 2009 the DAC reviewed sample Spring 2008 Senior Design reports and found little evidence of safety considerations reported. This element of the scoring rubric for Outcome C received a score below the response threshold. The problem was reported to the faculty by the DAC, and placed on the agenda of the next faculty meeting by the Department Head (agenda item reproduced below).

- Inquiry into Outcome C deficiency

  Two of five reviewers gave scores of 1 (marginal) on one assessment element of Outcome C: Has safety been considered appropriately? The other three reviewers gave that element a 2 (acceptable). The average is 1.6, below the threshold of 2, thereby invoking an “inquiry”.

  Note: The two reviewers giving marginal scores reviewed different design reports.

  Here are some options:

  - We could choose to do nothing – I don’t recommend this option, but it is an option.
  - We can choose to monitor this assessment outcome in the future.
  - We can provide the assessment rubric to students prior to completing their design reports as a reminder of the things we will be looking for.
  - We can ask faculty advisors to explicitly include safety at a group meeting.
  - We can ask the instructor for CHBE 411 and 412 to explicitly address safety (if it is not already).

- We can bring in a guest lecturer from industry to address safety.
- We can require a safety section in the design report.
- Other:_____

How would you like to respond?

Here is the faculty response:

> The Design instructor has already responded by moving safety lectures earlier in CHBE 412. A Design Report Guide will be developed to help students cover all required areas. A Safety section will be a required component of design reports from this point on.
>
> We will assess outcome C again using this year's final design reports by sending sample reports to DAC members (the members who were unable to attend this year's DAC meeting so that we get fresh eyes) with the Outcome C scoring rubric. The assessment outcome will be presented to the faculty as soon as it is available so that additional responses can be made, if needed.

Samples of Spring 2009 final design reports were reviewed by DAC members to ensure that the deficiency had been corrected.