

**UNIVERSITY ASSESSMENT COMMITTEE**  
**Feedback to Academic Departments on Assessment Activities Reported in 2007-08 Annual Reports**

**DEPARTMENT** Chemical Engineering **DATE** April 14, 2009

**COMMITTEE MEMBER(S) CONDUCTING REVIEW** Fred Remer, Darla Adams

**1. STUDENT LEARNING GOALS**

- |                                       |                 |                |                            |
|---------------------------------------|-----------------|----------------|----------------------------|
| • Were any goals referenced?          | YES <u>U,G</u>  | NO <u>    </u> | QUALIFIED Y/N <u>    </u>  |
| • If so, were goals well articulated? | YES <u>U,  </u> | NO <u>    </u> | QUALIFIED Y/N <u>  Y  </u> |
| • Do goals address student learning?  | YES <u>U,  </u> | NO <u>    </u> | QUALIFIED Y/N <u>  Y  </u> |

**Comments:**

**Undergraduate:** The goals referenced are well articulated and include educational objectives and more specific departmental goals.

**Graduate:** Goals and objectives are identified. Some of the objectives, however, are somewhat vague and non-specific. For example, one student goal is identified as "Graduates will be proficient researchers" and a corresponding objective is "Students will present their research findings at the chemical engineering department graduate seminar at least once during their program of study." A more detailed and specific student objective (one which identifies specific skills or values a student should exhibit) might be "upon completion of their master's thesis, the chemical engineering graduate student will be able to effectively articulate the theoretical and scientific underpinnings of their research study...to the chemical engineering faculty at least once during their program of study; analyze and interpret data to produce meaningful conclusions;..."

In addition to the Departmental goals, please also consider UND's Institutional and Essential Studies goals for student learning (shown in alignment within parentheses). Use 'U' (undergraduate) or 'G' (graduate) to identify UND/Essential Studies goals which are similar to the referenced departmental goals.

- U     G   1 Communication – written or oral ("able to write and speak in various settings with a sense of purpose/audience")  
  U   2 Thinking and reasoning – critical thinking (or "be intellectually curious"; analyze, synthesize, evaluate)  
  U   3 Thinking and reasoning – creative thinking (or "be intellectually creative"; explore, discover, engage)  
  U     G   4 Thinking and reasoning – quantitative reasoning ("apply empirical data...analyze graphical information")  
  U   5 Information literacy ("be able to access and evaluate...for effective, efficient, and ethical use")  
  U   6 Diversity ("demonstrate understanding of diversity and use that understanding...")  
     7 Lifelong learning ("commit themselves to lifelong learning")  
     8 Service/citizenship ("share responsibility both for their communities and for the world")

**Comments regarding departmental goals and alignment of departmental goals with institutional and Essential Studies goals:**

**Undergraduate:** Many of the departmental goals align nicely with the Essential studies goals. Diversity is minimally addressed, but is briefly mentioned.

**Graduate:** no additional comments

**2. ASSESSMENT METHODS**

- |  |                 |                |                            |
|--|-----------------|----------------|----------------------------|
| Were any specific assessment methods referenced?   | YES <u>U, G</u> | NO <u>    </u> | QUALIFIED Y/N <u>    </u>  |
| • If so, were specifically chosen assessment methods appropriately aligned with individual goals?        | YES <u>U</u>    | NO <u>    </u> | QUALIFIED Y/N <u>  G  </u> |
| • Were both direct and indirect assessment methods used as components of a "multiple measures" approach? | YES <u>U, G</u> | NO <u>    </u> | QUALIFIED Y/N <u>    </u>  |

*Comments:*

**Undergraduate:** Several methods of assessment are referenced, indicating an understanding of the importance of multiple methods of assessment of student learning. An extensive detailing of assessment methods is provided in the department's undergraduate assessment plan. Outcomes, objectives and performance criteria are paired directly to their respective method of evaluation within the department's assessment plan.

**Graduate:** Specific methods were found on the 2004-2005 Graduate Assessment Plan. A table linking student learning goals and outcomes with educational experiences and assessment methods was very helpful. One particular method of assessing student learning that was noted in this table, however, was "draft program of study (POS) completed" as a way of measuring student learning goal #1 "Graduates will have mastered selected topics in chemical engineering to achieve their specific goals and objectives". This particular method (completing a POS) most likely would not ensure that a student would master chemical engineering concepts or topics and the department may want to reconsider this assessment method.

### 3. ASSESSMENT RESULTS

Were any assessment results reported?	YES___	NO_U_G_	QUALIFIED Y/N ___
• If so, were the results clear in terms of how they specifically affirm achievement of goals?	YES___	NO___	QUALIFIED Y/N ___
• If so, were the results clear in terms of how they indicate need for improvement?	YES___	NO___	QUALIFIED Y/N ___
• Were the results tied to goals for student learning?	YES___	NO___	QUALIFIED Y/N ___

*Comments:*

**Undergraduate:** This department clearly understands the assessment process and the importance of assessment of student learning. This department held a major retreat in both May and June to discuss assessment outcomes, among other things. It was determined by faculty at this retreat that the department was successfully meeting all of the learning outcomes and educational objectives. No specific assessment results were provided with this report. Results were available upon request; however there appeared to be more focus on student recruitment than student learning.

**Graduate:** Results were not provided.

In addition to departmental goals, some assessment results may be applicable to institutional and Essential Studies goals. Use 'U' (undergraduate) or 'G' (graduate) to identify those results which are applicable to institutional/Essential Studies goal achievement. For indicated items, please describe findings in the appropriate section below. .

- \_\_\_\_\_ 1 Communication – written or oral ("able to write and speak in various settings with a sense of purpose/audience")
- \_\_\_\_\_ 2 Thinking and reasoning – critical thinking (or "be intellectually curious"; analyze, synthesize, evaluate)
- \_\_\_\_\_ 3 Thinking and reasoning – creative thinking (or "be intellectually creative"; explore, discover, engage)
- \_\_\_\_\_ 4 Thinking and reasoning – quantitative reasoning ("apply empirical data...analyze graphical information")
- \_\_\_\_\_ 5 Information literacy ("be able to access and evaluate...for effective, efficient, and ethical use")
- \_\_\_\_\_ 6 Diversity ("demonstrate understanding of diversity and use that understanding...")
- \_\_\_\_\_ 7 Lifelong learning ("commit themselves to lifelong learning")
- \_\_\_\_\_ 8 Service/citizenship ("share responsibility both for their communities and for the world")

*Comments regarding results and the application of results to departmental, institutional and Essential Studies goals:*

**Undergraduate:** No results reported. Report referred reviewers to department for a more detailed report.

**Graduate:** No specific results reported. Reference made indicating no program deficiencies had been noted. Lack of qualified applicants mentioned.

### 4. CLOSING THE LOOP

Were any actions taken on the basis of assessment results reported?

YES\_\_\_\_\_ NO\_G\_\_ QUALIFIED Y/N U\_\_

- If so, do curricular or other improvements/ changes arising from assessment results directly address goals for student learning?

YES\_\_\_\_\_ NO\_\_\_ QUALIFIED Y/N \_\_\_\_\_

**Comments:**

**Undergraduate:** Emphasis in this area was given to student recruitment into the chemical engineering program and not related to student learning outcomes. A thorough review of the chemical engineering curriculum was undertaken by faculty in 2008 at a faculty retreat and these changes will be implemented next year with the goal of strengthening the overall program. These specific changes were not described and a link to specific student learning outcomes was not established.

**Graduate:** Focus was on recruitment of students into the program

**SUMMARY**

***Strengths***

U,G A specific plan for assessment is in place.  
U Student learning goals are well-articulated.  
\_\_\_\_ Assessment methods are clearly described.  
U Assessment methods are appropriately selected.  
\_\_\_\_ Assessment methods are well-implemented.  
U Direct and indirect methods are implemented.  
\_\_\_\_ Results are reported.  
\_\_\_\_ Results are tied to closing the loop.  
(Decision-making is tied to evidence.)

***Areas for Improvement***

\_\_\_\_ No specific plan for assessment is in place.  
\_\_\_\_ Student learning goals are not well-articulated.  
G Assessment methods are not clearly described.  
\_\_\_\_ Assessment methods are not appropriately selected.  
\_\_\_\_ Assessment methods are not well-implemented.  
\_\_\_\_ A single type of assessment methods predominates.  
U,G No results are reported.  
U,G Results are not clearly tied to closing the loop.  
(Decision-making is not directly tied to evidence.)

**OVERALL SUMMARY AND RECOMMENDATIONS:**

The Chemical Engineering department clearly values assessment as indicated through their faculty retreats and concerted efforts dedicated to student assessment. Student learning goals and objectives are in place. A more complete description of assessment results and closing the loop activities would complete their report and further their assessment efforts.

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Section 1: Y Section 2: ? Section 3: NA Section 4: NA

**Coding Key:**

- Y = yes, this is done appropriately and well  
N = no, this is not done at all, or it is not done in relationship to student learning

NA = no information available

? = action or progress is apparent; however, evidence is lacking that this is completely and appropriately done