UNIVERSITY ASSESSMENT COMMITTEE
Feedback to Academic Departments on Assessment Activities Reported in ____2014-15____ *(Academic year)*

UNDERGRADUATE PROGRAMS

DEPARTMENT____Petroleum Engineering_____**DATE**____May 1, 2015_____

PROGRAM(S) COVERED IN REVIEW _____BS in Petroleum Engineering_____

COMMITTEE MEMBER(S) CONDUCTING REVIEW__Kenneth Ruit and Joan Hawthorne_____

1. STUDENT LEARNING GOALS

- Were any goals referenced? YES__X_ NO___ QUALIFIED Y/N ___
- If so, were goals well articulated? YES__X_ NO___ QUALIFIED Y/N ___
- Do goals address student learning? YES__X_ NO___ QUALIFIED Y/N ___

Comments: *Petroleum Engineering has articulated overall program goals, which have been mapped to UND student learning goals as well as College of Engineering and Mines student learning goals. In addition, Petroleum Engineering has identified eleven student learning outcomes that have been used in design of the curriculum leading to the bachelor's degree. Each student learning outcome has been mapped to at least one of the three overall program goals.*

In addition to the program goals, please also consider UND's institutional and Essential Studies goals for student learning (shown in alignment within parentheses) and identify which goals are similar to program goals.

____X__ 1 Communication – written or oral ("able to write and speak in various settings with a sense of purpose/audience")
____X__ 2 Thinking and reasoning – critical thinking (or "be intellectually curious"; analyze, synthesize, evaluate)
____X__ 3 Thinking and reasoning – creative thinking (or "be intellectually creative"; explore, discover, engage)
____X__ 4 Thinking and reasoning – quantitative reasoning ("apply empirical data…analyze graphical information")
____X__ 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…")
____X__ 7 Lifelong learning ("commit themselves to lifelong learning")
____X__ 8 Service/citizenship ("share responsibility both for their communities and for the world")

Comments regarding program goals and alignment with institutional and Essential Studies goals: *Petroleum Engineering student learning outcomes clearly align with the majority of institutional and Essential Studies goals.*

2. ASSESSMENT METHODS

Were any specific assessment methods referenced? YES__X_ NO____ QUALIFIED Y/N ____

- If so, were specifically chosen assessment methods appropriately aligned with individual goals? YES__X_ NO____ QUALIFIED Y/N ____
- Were both direct and indirect assessment methods used as components of a "multiple measures" approach? YES__X_ NO____ QUALIFIED Y/N ____

Comments: *The assessment plan includes a matrix that articulates student performance criteria and assessment tools used to assess outcomes for each of the eleven student learning outcomes. Methods include course examinations, the Fundamentals of Engineering examination, lab reports, capstone experiences, senior exit surveys, and other surveys of students and alumni. Performance criteria for each student learning outcome are*

mapped to individual courses in the curriculum. A performance vector approach has been implemented to measure student achievement of performance criteria using the categories of 'exemplary', 'accomplished', 'developing' and 'unsatisfactory'. This approach makes it possible for the faculty to dashboard outcomes in a way that facilitates easy identification of curricular issues that require attention.

3. ASSESSMENT RESULTS

Were any assessment results reported? YES__X_ NO____ QUALIFIED Y/N ____

- If so, were the results clear in terms of how they specifically affirm achievement of goals? YES__X_ NO____ QUALIFIED Y/N ____
- If so, were the results clear in terms of how they indicate need for improvement? YES__X_ NO____ QUALIFIED Y/N ____
- Were the results tied to goals for student learning? YES__X_ NO____ QUALIFIED Y/N ____

Comments: *Assessment results for the period October 2012-April 2014 were reported for each of the eleven student learning outcomes on the basis of at least one assessment method for each outcome. Specific outcomes on the basis of direct measures identified some outcomes that fell below performance criteria, e.g., chemistry, strength of material, advanced engineering mathematics, engineering probability and statistics, engineering economics, and require additional monitoring as well as those that demonstrated that performance criteria were being met.*

In addition to program goals, some assessment results may be applicable to institutional and Essential Studies goals. Indicate any goals for which the program presents findings, and, for indicated items, describe findings below.

____X__ 1 Communication – written or oral ("able to write and speak in various settings with a sense of purpose/audience")
____X__ 2 Thinking and reasoning – critical thinking (or "be intellectually curious"; analyze, synthesize, evaluate)
____X__ 3 Thinking and reasoning – creative thinking (or "be intellectually creative"; explore, discover, engage)
____X__ 4 Thinking and reasoning – quantitative reasoning ("apply empirical data…analyze graphical information")
____X__ 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…")
____X__ 7 Lifelong learning ("commit themselves to lifelong learning")
____X__ 8 Service/citizenship ("share responsibility both for their communities and for the world")

Comments regarding results and the application of results to program, institutional, and Essential Studies goals: *Assessment results were reported on the basis of primarily two direct assessments – the Fundamentals of Engineering examination (the first step in the process leading to the Professional Engineer license) and examinations administered in courses. A Senior Exit Survey was also employed. Results were reported from the FE exam and from exam items identified by the faculty as directly addressing each of the student learning outcomes, which have each been mapped to program goals and institutional and Essential Studies goals.*

4. CLOSING THE LOOP

Were any actions taken on the basis of assessment results reported? YES_____ NO__ _ QUALIFIED Y/N __X_

- If so, do curricular or other improvements/ changes arising from assessment results directly address goals for student learning? YES_____ NO____ QUALIFIED Y/N ____

Comments: *Opportunities for monitoring and/or intervention have been specifically identified by the assessment methods employed since October 2012. To date, though, no specific actions taken on the basis of assessment results were reported. However, there is clear evidence that closing the loop activities are a current focus and will continue to be in the upcoming academic year.*

SUMMARY

Strengths	*Areas for Improvement*
__X_ A specific plan for assessment is in place.	____ No specific plan for assessment is in place.
__X_ Student learning goals are well-articulated.	____ Student learning goals are not well-articulated.
__X_ Assessment methods are clearly described.	____ Assessment methods are not clearly described.
__X_ Assessment methods are appropriately selected.	____ Assessment methods are not appropriately selected.
____ Assessment methods are well-implemented.	____ Assessment methods are not well-implemented.
__X_ Direct and indirect methods are implemented.	____ A single type of assessment methods predominates.
__X_ Results are reported.	____ No results are reported.
____ Results are tied to closing the loop. (Decision-making is tied to evidence.)	____ Results are not clearly tied to closing the loop. (Decision-making is not directly tied to evidence.)

OVERALL SUMMARY AND RECOMMENDATIONS:

The Department of Petroleum engineering, under the leadership of the new chair, has constructed and submitted a well-designed and comprehensive assessment plan for the program leading to the bachelor's degree. In addition, the assessment plan has been implemented and the faculty now have assessment results that are providing an indication about what their students are learning and whether they are achieving the desired student learning outcomes for the program. Specific data provided about student performance on the FE examination demonstrate opportunities for curricular revision and/or improvement. Action steps will be taken to address the outcomes identified as requiring attention.

The Petroleum Engineering undergraduate program is a new program at UND, having been approved and established in summer 2010. The chair and faculty have demonstrated thoughtfulness and intentionality in the design of the program, including its overall goals, student learning outcomes, curriculum, and assessment methods. Moreover, the department has a clear orientation to the use of assessment results for guiding continuous improvement. There is a clear culture of formatively and summatively assessing outcomes, which benefits the student as well as the faculty and the program. The department should be commended for its work.

MATERIALS REVIEWED

__X_ Annual assessment report *included as a part of submitted documentation in addition to the assessment plan*
__X_ Assessment plan (as posted) *not yet posted on the University Assessment website*
_____ Previous assessment review
_____ Other (please describe)

Reviewer(s):	Name	Kenneth Ruit	Joan Hawthorne
	Department	Basic Sciences	Academic Affairs
	Phone Number	777-2570	777-4684
	e-mail	kenneth.ruit@med.und.edu	joan.hawthorne@und.edu

Section 1: ___Y__ Section 2: ___Y__ Section 3: ___Y__ Section 4: ___Q__

Coding Key:

Y = yes, this is done appropriately and well (bearing in mind the kind of program(s) reviewed and recognizing that assessment is a cyclical process, i.e., with additional kinds of data to be collected and analyzed in other years)

Q = qualified yes as action or progress is apparent; however, evidence is lacking that this is completely and appropriately done

N = no, this is not done at all, or it is not done in relationship to student learning

N = no, it is unclear whether it was done at all, or it is not done in relationship to student learning

Revised Sept 24, 2014