Degree Program Assessment Plan

Degree Program - ENG - Petroleum Engineering (BSPE)

CIP Code: 14.2501.00
Degree Program Coordinator: Lloyd Heinze
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Program Purpose Statement: The mission of the Bob L. Herd Department of Petroleum Engineering has three elements:

To provide excellent instruction and design experience essential for graduates to enter their practice of petroleum engineering and pursue lifelong professional development.
To provide research opportunities for students that generate, communicate, and apply new knowledge for the betterment of society.
To foster a spirit of service and leadership among students and faculty and assist the public in addressing issues concerning using our resources, protecting our environment, and developing our infrastructure.

Student Learning Outcome: ABET Criterion 3a
An ability to apply knowledge of mathematics, science, and engineering

Outcome Status: Active
Outcome Type: Student Learning
Start Date: 08/23/2010

Assessment Methods

Student Exit Survey - Senior Exit Survey Responses (Active)
Criterion: Average of 4/5 should be obtained in the survey responses to ensure students attainment of this outcome
Schedule: every spring semester

Course Evaluation - Each faculty member teaching, a course mapped to be used for assessing this outcome, is filling up a course evaluation form to assess the attainment of this outcome based on students performance in exams, HW, or final reports. (Active)
Criterion: More than 80 % of students should attain the outcome(s) base on the teacher’s defined performance indicators(final report & presentation )
Schedule: Every summer I semester (annually)

Student Learning Outcome: ABET Criterion 3b
An ability to design and conduct experiments, as well as to analyze and interpret data

Outcome Status: Active
Outcome Type: Student Learning
Start Date: 08/23/2010

Assessment Methods

Performance - Using students performance in the two lab courses offered in the junior year. The students performance evaluated
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by teaching assistants and faculty who are teaching these courses. Students conduct experiment weekly in these courses (Active)

**Criterion:** 60% of students in the two lab courses offered in the junior year should be at or above satisfactory level based on the teaching assistant and faculty course assessment report. These are the first course were student conducted experiments related to petroleum engineering.

**Schedule:** Every Fall and Spring semesters in each year

**Student Exit Survey** - senior exit survey (Active)

**Criterion:** Average of 3.75/5 responses, (75%), should be obtained in the survey responses to ensure students attainment of this outcome

**Schedule:** annually

**Course Level Assessment** - Each faculty member teaching senior design I & II courses (about 4 teachers) is filling up a course evaluation form to assess the attainment of this outcomes based on students final reports including analyzing and interpreting oil and gas reservoirs data (Active)

**Criterion:** More than 70% of students should attain the outcome(s) based on the teacher’s defined performance indicators (final report & presentation, exams, and HW)

**Schedule:** Every summer I semester (annually)

**Student Learning Outcome: ABET Criterion 3c**

An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

**Outcome Status:** Active

**Outcome Type:** Student Learning

**Start Date:** 08/23/2010

**Assessment Methods**

**Student Exit Survey** - Senior Exit Survey (Active)

**Criterion:** Average of 4/5 should be obtained in the survey responses to ensure students attainment of this outcome

**Schedule:** Every spring semester

**Course Level Assessment** - Each faculty member teaching senior design I & II courses (about 4 teachers) is filling up a course evaluation form to assess the attainment of this outcomes based on students final reports including analyzing and interpreting oil and gas reservoirs data (Active)

**Criterion:** More than 75% of students should attain the outcome(s) based on the teacher’s defined performance indicators (final report & presentation, exams, and HW)

**Schedule:** Every summer I semester (annually)

**Student Learning Outcome: ABET Criterion 3d**

An ability to function on multidisciplinary teams

**Outcome Status:** Active

**Outcome Type:** Student Learning

**Start Date:** 08/23/2010

**Assessment Methods**

**Capstone Assignment/Project** - Teamwork Project Report from two senior design courses. (Active)
### Degree Program - ENG - Petroleum Engineering (BSPE)

| **Criterion:** More than 80 % of students should attain the outcome(s) base on the teacher’s defined performance indicators(final report & presentation, exams, and HW)  
**Schedule:** very summer I semester (annually) |
|---|

| **Student Exit Survey - senior exit survey (Active)**  
**Criterion:** Average of 4/5 should be obtained in the survey responses to ensure students attainment of this outcome  
**Schedule:** Annually |
|---|

| **Course Evaluation - senior year elective courses final projects (Active)**  
**Criterion:** More than 80 % of students should attain the outcome(s) base on the teacher’s defined performance indicators(final group projects & presentation)  
**Schedule:** Every summer I semester (annually) |
|---|

### Student Learning Outcome: ABET Criterion 3e

**An ability to identify, formulate, and solve engineering problems**  
**Outcome Status:** Active  
**Outcome Type:** Student Learning  
**Start Date:** 08/23/2010

#### Assessment Methods

| **Student Exit Survey - Senior Exit Survey (Active)**  
**Criterion:** Average of 4/5 should be obtained in the survey responses to ensure students attainment of this outcome  
**Schedule:** annually |
|---|

| **Course Level Assessment - Two junior courses and two senior courses are used in assessing the outcome a**  
1. Reservoir engineering I and II  
2. Drilling I and II (Active)  
**Criterion:** More than 80 % of students should attain the outcome(s) base on the teacher’s defined performance indicators(final report & presentation)  
**Schedule:** annually |
|---|

### Student Learning Outcome: ABET Criterion 3f

**An understanding of professional and ethical responsibility**  
**Outcome Status:** Active  
**Outcome Type:** Student Learning  
**Start Date:** 08/23/2010

#### Assessment Methods

| **Student Exit Survey - Senior Exit Survey (Active)**  
**Criterion:** Average of 4/5 should be obtained in the survey responses to ensure students attainment of this outcome  
**Schedule:** annually |
|---|

<table>
<thead>
<tr>
<th><strong>Capstone Assignment/Project - Each faculty member teaching senior design I &amp; II courses (about 4 teachers) is filling up a course evaluation form to assess the attainment of this outcomes based on students final project including analyzeing and interpreting</strong></th>
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| Criterion | More than 80 % of students should attain the outcome(s) based on the teacher’s defined performance indicators (final report & presentation) |
| Schedule  | annually |

Student Learning Outcome: ABET Criterion 3g

An ability to communicate effectively

Outcome Status: Active
Outcome Type: Student Learning
Start Date: 08/23/2010

Assessment Methods

- **Student Exit Survey** - Senior Exit Survey (Active)
  - Criterion: Average of 3.75/5 should be obtained in the survey responses to ensure students’ attainment of this outcome
  - Schedule: annually

- **Senior Exit Interview** - Focus group exit interview responses (Active)
  - Criterion: Feedback from students are satisfactory
  - Schedule: Annually

- **Capstone Assignment/Project** - Students give two oral presentations, one special report and one final written report. Deliverable for each presentation are set out by teaching staff (Active)
  - Criterion: >3.5
  - Schedule: Fall 2016 and spring 2017

Student Learning Outcome: ABET Criterion 3h

The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

Outcome Status: Active
Outcome Type: Student Learning
Start Date: 08/23/2010

Assessment Methods

- **Student Exit Survey** - Senior Exit Survey (Active)
  - Criterion: Average of 3.5/5 should be obtained in the survey responses to ensure students’ attainment of this outcome
  - Schedule: annually

- **Professional Development Activities** - SPE meeting guest speakers, department graduate seminar (Active)
  - Criterion: 50% of Students attending or No
  - Schedule: every semester

- **Faculty Assessment** - Using final Design I and II report b (Active)
  - Criterion: Outcome is satisfied when > 70% or 3.5 of the performance metrics is satisfied
  - Schedule: annually
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**Student Learning Outcome: ABET Criterion 3i**

A recognition of the need for, and an ability to engage in life-long learning

**Outcome Status:** Active  
**Outcome Type:** Student Learning  
**Start Date:** 08/23/2010

**Assessment Methods**

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| **Student Exit Survey - Senior Exit Survey** | (Active)  
**Criterion:** Average of 4/5 should be obtained in the survey responses to ensure students attainment of this outcome  
**Schedule:** annually |
| **Participation - Participation in student chapters meetings and related conferences and activities** | (Active)  
**Criterion:** students engage or not, minimum of 4 papers in southwest short course in Lubbock, attending the workshops offered in the meeting,  
**Schedule:** annually |
| **Capstone Assignment/Project - Final student report and presentation** | (Active)  
**Criterion:** >3.5  
**Schedule:** annually |

**Student Learning Outcome: ABET Criterion 3j**

A knowledge of contemporary issues

**Outcome Status:** Active  
**Outcome Type:** Student Learning  
**Start Date:** 08/23/2010

**Assessment Methods**

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| **Student Exit Survey - Senior Exit Survey** | (Active)  
**Criterion:** Average of 3.5/5 survey responses which is (70%) should be obtained in the survey responses to ensure students attainment of this outcome  
**Schedule:** very spring (annually) |
| **Capstone Assignment/Project - Faculty Assessment** | (Active)  
**Criterion:** More than 70 % of students should attain the outcome(s) base on the teacher’s defined performance indicators(final report & presentation, monthly reports)  
**Schedule:** Every summer I semester (annually) |

**Student Learning Outcome: ABET Criterion 3k**

An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

**Outcome Status:** Active  
**Outcome Type:** Student Learning  
**Start Date:** 08/23/2010
**Assessment Methods**

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<td><strong>Capstone Assignment/Project</strong> - Each faculty member teaching senior design I &amp; II courses (about 4 teachers) is filling up a course evaluation form to assess the attainment of this outcomes based on students final reports and presentations. (Active)</td>
<td><strong>Criterion:</strong> More than 70 % of students should attain the outcome(s) base on the teacher’s defined performance indicators(final report &amp; presentation, monthly reports). <strong>Schedule:</strong> Every summer I semester (annually).</td>
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