College of Agriculture

Biosystems Engineering

Biosystems Engineering, MS

Expected Outcome 1: Communication

Biosystems Engineering M.S. graduates will demonstrate effective oral and written communication.

Assessment Method 1: Advisory Committee

Assessment Method Description
An evaluation form is completed by the student's advisory committee members and BSEN faculty members that are present at the time of the student's defense of research work. The evaluation form contains several questions include those specific to this outcome - (a) Demonstrated ability to effectively communicate through speaking, (b) Demonstrated ability to use effective and appropriate visual aids in presentations, and (c) Demonstrated ability to write effectively as evidenced by thesis. Our criteria for success is that the average grade for the students is 4.5 out of a maximum of 6.0.

Findings
Biosystems Engineering M.S. and Ph.D. programs started in the Fall of 2010. Eleven students completed the M.S. Biosystems Engineering graduate program since inception. The average scores from the advisory committee and faculty assessment of Biosystems Engineering M.S. students were 3.83, 4.13 and 3.73 for speaking communication, visual aids and effective writing respectively.

How did you use findings for improvement?
The speaking and writing scores are below the minimum values set by Biosystems Engineering faculty. Biosystems Engineering graduate students are now required to use the services of the Office of University Writing before submitting the first draft of thesis. We will now begin the evaluation of student's seminar (at least one by MS student before thesis defense) to identify lower speaking skills students early in the program. We are in the process of identifying programs on campus to improve visual presentation skills and speaking effectiveness of graduate students.
Additional Comments

Assessment Method 2: Exit Survey

Assessment Method Description
The Biosystems Engineering department head conducts exit interviews of all graduating M.S. students that includes a questionnaire completed by each student. On a scale of 1 (disagree) to 5 (agree), the students were asked to rate their abilities in these two areas of communication: (a) Do you feel that you can communicate effectively using oral communication?, and (b) Do you feel that you can communicate effectively using written communication?. Our criteria for success is that the average grade for the students is 4 out of 5.

Findings
Biosystems Engineering M.S. and Ph.D. programs started in the Fall of 2010. Eleven students completed the M.S. Biosystems Engineering graduate program since inception but only two completed the exit survey. The average scores obtained from these two students in the two areas of communication (oral and written) were 5.0 and 5.0.

How did you use findings for improvement?
The survey scores by the students did not reflect the assessment results from faculty and advisory committee. We therefore feel that this exit survey does not adequately assess the communication skills of the students. The Department of Biosystems Engineering has started discussion on how the survey questions can be incorporated into the university questionnaire that the students have to complete before they can graduate from Auburn University.

Additional Comments

Expected Outcome 2: In-depth Knowledge
Our M.S. graduates will demonstrate in-depth knowledge of the basic sciences that are associated with one or more areas of specialization in Biosystems Engineering.

Assessment Method 1: Graded Course Work

Assessment Method Description
Biosystems Engineering M.S. students are required to earn 30 credit semester hours of graduate course work, 21 of which must be in BSEN major area of concentration. Our goal is that BSEN M.S. students earn average grade of 3.5 out of 4.0 scale in graded course work.
Findings
Biosystems Engineering M.S. and Ph.D. programs started in the Fall of 2010. Eleven students completed the M.S. Biosystems Engineering graduate program since inception. The average score earned by these students in the graded course work was 3.68 on a 4.0 scale.

How did you use findings for improvement?
BSEN M.S. students exceeded the goal set by the department. We however now realize that use of final grade in course work is not appropriate for assessment. We are in the process of develop a different method to assess this outcome.

Additional Comments
Assessment Method 2: Student Advisory Committee Evaluation

Assessment Method Description
An evaluation form is completed by the student's advisory committee members and BSEN faculty that are present at the time of the student's defense of research work. The evaluation form contains several questions that include those specific to this outcome - Demonstrated knowledge of one or more areas in Biosystems Engineering. Our criteria for success is that the average grade for the students is 4.5 out of a maximum of 6.0.

Findings
Biosystems Engineering M.S. and Ph.D. programs started in the Fall of 2010. Eleven students completed the M.S. Biosystems Engineering graduate program since inception. The average scores from the advisory committee and faculty assessment of Biosystems Engineering M.S. students was 4.03.

How did you use findings for improvement?
The in-depth knowledge score was below the target set by BSEN faculty even though this was not the case in the graded course work. BSEN faculty are reevaluating the course work requirement of BSEN M.S. students.

Additional Comments
**Expected Outcome 3: Research and Engineering Analyses**

Biosystems Engineering M.S. graduates will demonstrate the ability to conduct independent scientific research experiments and engineering analyses that lead to development of sustainable design solutions.

**Assessment Method 1: Student Advisory Committee**

**Assessment Method Description**
An evaluation form is completed by the student's advisory committee members and BSEN faculty members that are present at the time of the student's defense of research work. The evaluation form contains several questions that include those specific to this outcome - (a) Demonstrated ability to conduct independent scientific research, and (b) Demonstrated ability to perform engineering analyses. Our criteria for success is that the average grade for the students is 4.5 out of a maximum of 6.0.

**Findings**
Biosystems Engineering M.S. and Ph.D. programs started in the Fall of 2010. Eight students completed the M.S. Biosystems Engineering graduate program since inception. The average assessment scores by student's advisory committees and faculty were 3.51 and 4.17 for independent scientific research and for students' ability to perform engineering analyses to problems.

**How did you use findings for improvement?**
The assessment scores are below the minimum values set by Biosystems Engineering faculty. The faculty are reevaluating the course work requirements for Biosystems Engineering M.S. students.

**Additional Comments**

**Assessment Method 2: Exit Survey**

**Assessment Method Description**
The Biosystems Engineering department head conducts exit interviews of all graduating M.S. students that includes a questionnaire that is completed by each student. One of the questions in the questionnaire is related to this outcome. The scale was from 1 to 5 (1 - Disagree, 5 - Agree). Our goal is that students will give a rating of at least 4.0.

**Findings**
Biosystems Engineering M.S. and Ph.D. programs started in the Fall of 2010. Eleven students completed the M.S. Biosystems Engineering graduate program since inception but only two completed the exit survey. The students assessed their Research and Engineering
Analyses abilities to be a 5.0 out of 5.0 scale.

**How did you use findings for improvement?**
The survey scores by the students did not reflect the assessment results from BSEN faculty and advisory committee. We therefore believe that this exit survey does not adequately assess this outcome. In addition to developing another method to assess this outcome, the BSEN department has started discussion on how the survey questions can be incorporated into the university questionnaire that the students have to complete before they can graduate from Auburn University.

**Additional Comments**