

ASSESSMENT PLAN FOR THE BSME PROGRAM (Spring 2005)

1. Program Educational Objectives.

The Program Educational Objectives of the Mechanical Engineering program as adopted by its constituents are:

- a. Prepare students for employment as mechanical engineers
- b. Enable interested students to pursue graduate education
- c. Utilize the unique opportunities of a metropolitan location to provide graduates with industry based project experiences.

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2. Program Constituencies.

The constituents of our program are:

- a. Faculty
- b. Students
- c. Industry
- d. Alumni

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3. Process to Determine and Evaluate Objectives.

The mechanical engineering faculty through due deliberation and discussion originally outlined the Program Educational Objectives. These objectives are evaluated and reviewed every year.

The department's curriculum committee consisting of three members along with the Chair forms the Program Assessment Committee. The only charge of this committee is to ensure that the program assessment and improvement is carried out in an efficient manner. As part of this charge the committee carries out the following tasks:

- Ensure that the objectives are in line with the ABET guidelines
- Examine the assessment tools
- Suggest necessary modifications to the assessment and implementation process
- Incorporate/accommodate in the Program Objectives any change in the University and the College of Engineering mission objectives

The assessment committee conducts its charge in a cyclical manner taking into account the feedback from the program constituents. The form of this input is summarized in Table 1. The program objectives are broad and traditional. While processes are in place to continuously assure that the objectives meet the needs of the constituents, it is not anticipated that the program objectives will change on a yearly basis. The faculty has, therefore, determined that a three-year cycle for assessment of objectives is appropriate. A diagram of the assessment process is shown in Figure 1.

Table 1: Constituents and Input

Constituent	Input
Faculty	Formal, documented discussion
Students	Student senior exit survey (oral and written)
Industrial Advisory Board	Advisory committee meetings Feedback on Senior project activities
Alumni	Alumni survey results Documented anecdotal information

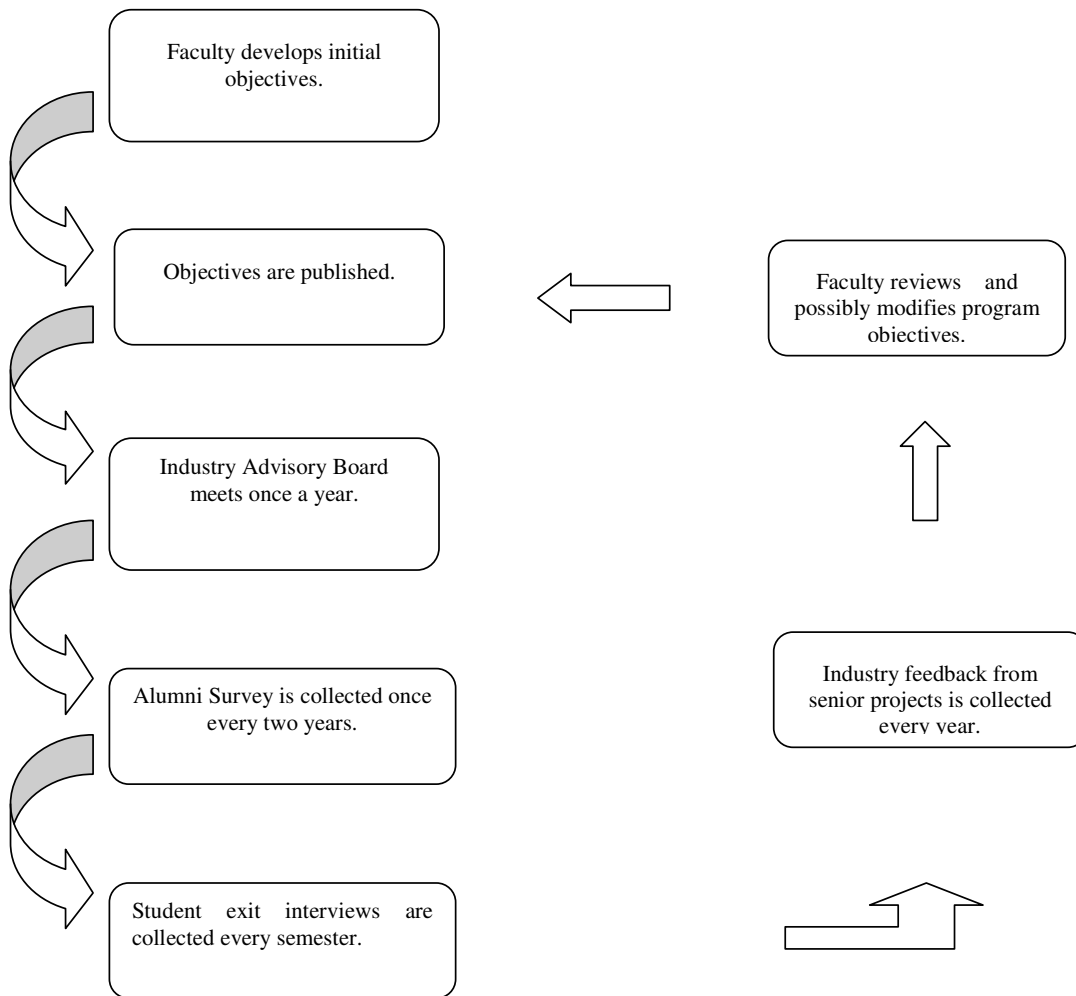


Figure 1. Program Objectives Development-Evaluation Process.

4. Program Outcomes.

The Program Outcomes are that the graduates of the program will have demonstrated that they have:

- a. acquired the ability to apply fundamental knowledge of mathematics, science, and mechanical engineering
- b. the ability to design energy, structures, motion systems, and their components
- c. the ability to design and conduct mechanical engineering experiments in support of engineering design and/or development
- d. problem solving skills
- e. the ability to educate themselves
- f. developed effective communication skills
- g. the ability to function in teams
- h. an awareness of the complex environment in which they practice their profession

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5. Process for Input/Evaluation/Revision of Program Outcomes.

The philosophy behind the Mechanical Engineering Department's assessment program is simple; the belief that data is an indispensable aid to decision making. The faculty and staff of the Mechanical Engineering Department are committed to the concept of continual improvement in the quality of the educational program. However, the department understands that constant or random changing of every aspect of how the undergraduate program is delivered is not an effective or rational approach to continuous improvement. The assessment program was thus designed to provide tools that deliver quantitative and qualitative data. The data, when summarized and reviewed, help to provide the faculty with ideas for where improvements to the program may be most effectively applied to most effectively achieve our program educational objectives. Near the beginning of each academic year, the assessment data is distributed to the faculty for review. After discussion involving the entire department faculty, a specific action or actions are chosen to improve some facet of the program.

The assessment tools used are listed as follows:

- a. The Survey on Classes -- quantitative data
- b. The ME Senior Exit Interview--qualitative data
- c. The Confidence Survey on Engineering Attributes--quantitative data
- d. The Fundamentals of Engineering Exam--quantitative data
- e. The Alumni Survey--primarily quantitative data, some qualitative
- f. Senior Project Reviews--quantitative data

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The Student Survey on Classes is a confidential survey given to the ME662 class. Students are asked to rate the classes they have taken in four areas: amount of learning, quality of the course, quality of instruction, and amount of work.

The ME Senior Exit Interview is a questionnaire that is given to each student at his or her Senior Exit Interview, a scheduled event that takes place in the semester preceding the student's graduation. The Senior Exit Interview is conducted privately between the student and the ME department chairman. After the interview, the student is given the questionnaire to fill out and is instructed to return it upon completion. The method of returning it is to drop it into a collector box in the ME office. The students are instructed not to put their names on the form, so that their opinions can be given anonymously. The questionnaire is a strictly qualitative assessment tool. The questions are open-ended and allow for the students to give feedback on a variety of issues concerning their educational experience at WSU.

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This Confidence Survey is given to seniors in their last semester before graduation. The seniors who take this survey, rate their own perceived competence and confidence in performing or conforming with various attributes. The ME faculty reviews these results not so much for any specific numerical score, but instead for evidence that any attribute consistently shows a high or low score.

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Results from the Fundamentals of Engineering Examination given each year in April are analyzed to determine WSU's performance compared to national performance, and to determine which courses or subject areas might stand out as being exceptionally high or low. These results are obtained from reports generated and provided by the National Council of Examiners for Engineering and Surveying. Taking the Fundamentals of Engineering examination is a voluntary activity for WSU Mechanical Engineering students. Hence, we are not able to make any claims regarding the performance of WSU students compared to other groups. The sole reason for analyzing these results is to provide indicators of potential problem areas.

The college ABET committee decided to develop an alumni survey, the results of which could be used to aid decision making processes of the faculty in assessing the effectiveness of educational programs. This survey was developed by the ABET committee. The committee members plan to examine the results of the survey, and to make changes as needed so that a finalized and useful survey tool could be developed for future distribution.

Each semester all Capstone Design projects are evaluated by project sponsors and instructor. Instructor summarizes evaluation results and forwards to the ME faculty. The ME faculty assess the results and feedback to the program.