1) Has your program developed learning outcomes? If yes, please list.

Student Learning Outcomes (SLO)

(Program Outcomes)

a) An ability to apply knowledge of mathematics, science, and engineering
b) An ability to design and conduct experiments, analyze, and interpret data
c) An ability to design a system, component, or process to meet desired needs
d) An ability to function on multidisciplinary teams
e) An ability to identify, formulate, and solve engineering problems
f) An understanding of professional and ethical responsibility
g) An ability to communicate effectively
h) The broad education necessary to understand the impact of engineering solutions in a social context
i) A recognition of the need and an ability to engage in life-long learning
j) A knowledge of contemporary issues
k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

2) If your program has learning outcomes, where are they published (e.g., department web page)?

Department web page (www.me.hawaii.edu) F08, and the University of Hawaii at Manoa 2008-2009 Catalog.

3) Do your faculty list course learning outcomes on their syllabi?

SLOs are being listed on course syllabi beginning the F08 semester.

4) Does your program have a curriculum map that links course outcomes to program outcomes? If so, please include.
Each course has expected SLOs (course outcomes) associated with it—clearly no course will meet every SLO (program outcomes), but when students satisfactorily complete all required courses, they will have been provided the background necessary to cover all the SLOs. In addition, links between Program Objectives and Program Outcomes are explained in the following.

Program Objectives

**O1:** To teach our students the basic laws of nature that are relevant to the fields of mechanical engineering, and to closely related fields, and how to use those laws to formulate and solve engineering problems using applicable analytical, computational, and experimental techniques.

**O2:** To develop in our students the skills pertinent to the design process, to think creatively, to communicate effectively, and to work collaboratively.

**O3:** To instill in our students an understanding and acceptance of their professional and ethical responsibilities, a respect for diversity of opinion and culture, and a concern for a healthy and aesthetic environment.

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<th>Objectives</th>
<th>SLOs</th>
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<td>O2</td>
<td>b, c, d, g, k</td>
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Program Objectives - SLO Links to ME Courses

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*Department Professional Components:

PC1 - A culminating design experience, that integrates knowledge and skills acquired throughout the curriculum.

PC2 - The application of engineering standards and realistic constraints, including consideration of Economics, Environmental Sustainability, Manufacturability, Ethics, Health, Safety, Society, and Politics

5) Does your program benchmark or have goals for student performance? (e.g. 70% students will graduate within 5 years)

The Department is in the process of establishing such benchmarks.

6) Other than GPA, what data/evidence is used to determine that graduates have achieved stated outcomes for the degree? (i.e. capstone project, class assignment)

Internal Assessments:

1. Student Teaching Evaluations (Indirect)

2. Student Assessments on Program Objectives and Outcomes (Indirect)

3. Student Exit Interviews (Direct)
4. Student Advisory Board, SAB, (Indirect)
5. Faculty Score Cards, Performance Criteria, Rubrics (Direct)
6. Course Portfolios (Direct)

**External Assessments:**

1. Industry Advisory Board, IAB, (Direct)
2. Employers of our graduates (Direct)
3. Alumni (Indirect)
4. Capstone Senior Design Evaluation by the ASME Senior Section (Direct)

7) **Who interprets the evidence of student learning?**

The Mechanical Engineering ABET committee interprets the SLOs for each course through student surveys and the faculty score cards/performance criteria/and rubrics of a) through k) listed in 1). In addition, the SLOs are evaluated by our Industry Advisory Board (IAB) members through the evaluation of our student performance by Student Advisory Board (SAB) presentations, IAB/SAB meetings, faculty presentations and laboratory tours. Further, the SLOs and a major design experience are assessed by the American Society of Mechanical Engineers (ASME) local senior section. Also, employers of our graduates assess their performance in their organizations and provide performance feedback to the Department. Finally, the Chair of the Department conducts exit interviews covering the SLOs and anything else the students wish to discuss. The results obtained from IAB/SAB/ASME/Employers/Alumni/Exit Interviews/Students/Faculty also are interpreted by the ME ABET committee and the ME faculty are provided feedback for curriculum improvement.

8) **How are the assessment data/results used to inform decisions concerning the curriculum and administration of the program?**
The ABET committee collects raw data explained in item 6) and tabulates them against various courses with input from ME faculty and identifies shortcomings and areas of needed improvement for each SLO associated with each course.