Alignment between ABET Student Learning Outcomes (SLO) and Mānoa Undergraduate Institutional Learning Outcomes (ILO)

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<tr>
<th>ABET SLO</th>
<th>Related undergraduate ILOs</th>
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<td>1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.</td>
<td>1a. General education, 1b. Specialized study in an academic field, 2a. Think critically and creatively, 2b. Conduct research</td>
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<td>2. An ability to apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.</td>
<td>1a. General education, 1b. Specialized study in an academic field, 2a. Think critically and creatively, 2b. Conduct research, 3c. Stewardship of the natural environment</td>
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<td>3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.</td>
<td>1b. Specialized study in an academic field, 2a. Think critically and creatively, 2b. Conduct research</td>
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<td>4. An ability to communicate effectively with a range of audiences.</td>
<td>1b. Specialized study in an academic field, 2c. Communicate and report, 3d. Civic participation in their communities</td>
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<td>5. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.</td>
<td>1a. General education, 1b. Specialized study in an academic field, 1c. Understand Hawaiian culture and history, 3b. Respect for people and cultures, in particular Hawaiian culture, 3c. Stewardship of the natural environment, 3d. Civic participation in their communities</td>
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<td>6. An ability to recognize the ongoing need to acquire new knowledge, to choose appropriate learning strategies, and to apply this knowledge.</td>
<td>1a. General education, 1b. Specialized study in an academic field, 3a. Continuous learning and personal growth, 3d. Civic participation in their communities</td>
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<td>7. An ability to function effectively as a member or leader of a team that establishes goals, plans tasks, meets deadlines, and creates a collaborative and inclusive environment.</td>
<td>1a. General education, 1b. Specialized study in an academic field, 2c. Communicate and report, 3b. Respect for people and cultures, in particular Hawaiian culture</td>
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Mānoa Institutional Learning Objectives for Undergraduate Students

Institutional Learning Objectives (ILOs) encompass the UH Mānoa undergraduate experience as a whole—academic and cocurricular. It is through the combined efforts of faculty, students, staff, and administrators that students achieve the ILOs.

1. Know -- Breadth and Depth of Knowledge
   1a. General education  
   1b. Specialized study in an academic field  
   1c. Understand Hawaiian culture and history

2. Do -- Intellectual and Practical Skills
   2a. Think critically and creatively  
   2b. Conduct research  
   2c. Communicate and report

3. Value -- Personal and Social Responsibility
   3a. Continuous learning and personal  
   3b. Respect for people and cultures, in particular Hawaiian  
   3c. Stewardship of the natural  
   3d. Civic participation in their communities
Example of Alignment

**Undergraduate ILO**
Communicate and report (ILO 2c)

**Program/ABET**
An ability to communicate effectively with a range of audiences (ABET 4).

**Course SLO**
Able to describe in writing the project site, salient problems, and constraints and to propose in writing concepts and solutions (CEE 490).
Able to produce a presentable report containing an executive summary, introduction, tasks distribution, concepts, design calculations, drawings for tender documentation, and conclusions (CEE 490).

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**ILO Assessment Overview: Example**
1. ILOs assessed: think critically and creatively (2a); communicate and report (2c)
2. Student learning evidence: senior capstone project report
3. Evaluation tool: scoring rubrics
4. Evaluation: Capstone course instructor scores his/her students and a random sample are scored by faculty on the ILO Assessment Team
5. Reporting: aggregate results are reported to faculty, administrators, and WASC
6. Use: aggregate results are used by faculty groups to improve overall campus effectiveness