Office of Academic Assessment

3-Year Academic Assessment Plan Cover Sheet
Assessment plans are due December 20, 2018
Email to: assessment@unlv.edu

Program Information

<table>
<thead>
<tr>
<th>Program Assessed</th>
<th>Master of Science in Mechanical Engineering</th>
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<tbody>
<tr>
<td>Department</td>
<td>Mechanical Engineering</td>
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<tr>
<td>College</td>
<td>Howard R. Hughes College of Engineering</td>
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<tr>
<td>Department Chair</td>
<td>Brendan O’Toole</td>
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<tr>
<td>Assessment Coordinator</td>
<td>Brendan O’Toole &amp; Hui Zhao (Grad. Coordinator)</td>
</tr>
<tr>
<td>Date Submitted</td>
<td>Feb. 5, 2019</td>
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<tr>
<td>Contact Person for This Plan</td>
<td>Brendan O’Toole</td>
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</tbody>
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Phone                Office: (702) 895 – 3885 Mobile: (702) 271 - 3746
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Please address the following items:

- What are the student learning outcomes? Please provide a numbered list.
- **Plans must include a curriculum map showing which courses will address which learning outcomes.** Examples can be found here: http://provost.unlv.edu/Assessment/map.html
- Which learning outcomes will be assessed in each cycle year (i.e., assessment timeline)?
- How will the learning outcomes be assessed? (Programs must use at least one direct assessment of student learning.)
- Undergraduate programs should assess at least one University Undergraduate Learning Outcome (UULO) each year, which may or may not overlap with a program learning outcome.
- Graduate programs should assess at least one outcome related to one of the following graduate level requirements each year:
  - student engagement in research, scholarship, creative expression and/or appropriate high-level professional practice.
  - activities requiring originality, critical analysis and expertise.
  - the development of extensive knowledge in the field under study.
- What is your plan for sharing the assessment results and acting on them (i.e., closing the loop)?

Please limit the narrative portion of your report to no more than four pages. You may attach appendices with data, tables, charts, or other materials as needed. Please explain the relevant conclusions from any appendices in your narrative. Please contact the Office of Academic Assessment if you have questions or need assistance.
The Mechanical Engineering Department has four M.S. degree programs. The administration and assessment of these programs is conducted as one integrated department activity. The programs are:

- M.S.M.E. Master of Science in Mechanical Engineering
- M.S.A.E. Master of Science in Aerospace Engineering
- M.S.B.E. Master of Science in Biomedical Engineering
- M.S.M.N.E. Master of Science in Materials and Nuclear Engineering

**Step 1: Define Program Related Student Learning Outcomes**

1. Provide mechanical engineering graduates with technical capabilities. The objective outcomes are:
   - 1.a. An advanced knowledge of state-of-the-art and evolving areas associated with the mechanical engineering field
   - 1.b. The ability to work creatively and independently on research topics
   - 1.c. The ability to solve open-ended design problems

2. Prepare mechanical engineering graduates to have effective workplace skills. The objective outcomes are:
   - 2.a. Oral and written presentation of technical information
   - 2.b. Motivation to pursue life-long learning

**Step 2: Assign Program Related Student Learning Outcomes to Specific Courses**

M.S. and Ph.D. graduate students in Mechanical Engineering can take a wide variety of courses. The courses will vary depending on program within the department. Even within a single program, students have much flexibility in course selection.

All graduate courses in mechanical engineering include 1a as an outcome. Most graduate courses also include 1b, 1c, and 2a. A graduate seminar series is provided each semester which contributes to outcome 2b.

All of these outcomes are also stressed in the process of writing and defending a thesis or dissertation.
**Step 3: Define Methods, Instruments, and Analysis of Student Learning Outcomes Assessment**

<table>
<thead>
<tr>
<th>Assessment Instrument</th>
<th>Learning outcomes assessed</th>
<th>Person responsible for instrument &amp; data collection</th>
<th>When and where will data be collected</th>
<th>Expected Measures (results that would indicate success)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student GPA</td>
<td>1.a</td>
<td>B. O'Toole and/or H. Zhao</td>
<td>Time of graduation</td>
<td>Expected result is an average of 3.5.</td>
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<tr>
<td>Graduate Exit Interview</td>
<td>1.a 1.b 1.c 2.a 2.b</td>
<td>B. O'Toole and/or H. Zhao</td>
<td>Time of graduation</td>
<td>Expected result is an average of 4.0 on a scale of 0.0 - 5.0.</td>
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<tr>
<td>Number of Publications</td>
<td>1.b 1.c 2.a</td>
<td>B. O'Toole and/or H. Zhao</td>
<td>Time of graduation</td>
<td>Expected result is an average of one technical publication per graduating student.</td>
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<tr>
<td>Alumni Survey</td>
<td>2.b</td>
<td>B. O'Toole and/or H. Zhao</td>
<td>Every three years</td>
<td>Expected result is an average of 4.0 on a scale of 0.0 - 5.0.</td>
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**Step 4: Action Plan for Continuous Program Improvement**

The department chair will provide a summary report each year. The results will be reviewed in a meeting of graduate faculty members, and suggestions made in this meeting will be implemented in the following academic year.

This plan will be reviewed every three years.