Because students are engaged by MasteringEngineering homework, they spend more time using it and develop more independent-learning skills. After only one semester, there was a strong correlation between homework scores and final exam grades, and student success rates improved.

**Assessments**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 percent</td>
<td>Final exam</td>
</tr>
<tr>
<td>30 percent</td>
<td>Exams (three)</td>
</tr>
<tr>
<td>30 percent</td>
<td>MasteringEngineering homework</td>
</tr>
<tr>
<td>5 percent</td>
<td>Attendance</td>
</tr>
</tbody>
</table>

**Results and Data**

After evaluating my results for all three courses taught in the spring 2013 semester, I found positive outcomes for each. After implementing MasteringEngineering, final course grades in Dynamics for Civil and Biological Engineers improved (figure 1):

- The percent of As and Bs increased by 18 percentage points—from 20 percent to 29 percent for each grade.
- The number of Fs decreased by 20 percentage points—from 20 percent to zero.

Figure 1. Grade Distributions, Dynamics for Civil and Biological Engineers, Fall 2012 (n=29) and Spring 2013 (n=31)
I don’t have course grades from before implementation of MasteringEngineering for the Statics and Dynamics courses for Mechanical Engineers, but using my Spring 2013 results I was able to discover a strong correlation between a student’s MasteringEngineering homework score and cumulative final exam score (figures 2 and 3).

The Student Experience
I asked my students what they liked best about using MasteringEngineering. Their responses included:

• “The help it provides and having multiple attempts to solve a problem. If I get a question wrong, I have the opportunity to understand why I got it wrong and how to approach and solve the problem the next time I am faced with it.”

• “The online aspect of completing my work. It kept me on my toes as far as checking for new assignments (great business preparation).”

• “That it gave me feedback on answers to let me know whether or not I was on the right track.”

• “The calendar because it was easy to see when my assignments were due.”

• “How it explained conceptual material to me once I’d answered a problem.”

Conclusion
Homework is an integral part of the Statics and Dynamics courses. Students seem to be more engaged with the course content when doing homework in MasteringEngineering and they appreciate the hints and immediate feedback. In addition, since implementing MasteringEngineering, fewer students come to office hours for help and the majority of students come to class better prepared. Because of the positive results I’ve seen in my first semester of use, I will continue to use MasteringEngineering.