Academic Planning Council
In-depth Program Review [Form B]
Evaluation Sheet

Academic Planning Council

To be completed by the Academic Planning Council.

Please provide the following information.

<table>
<thead>
<tr>
<th>Name of APC Member</th>
<th>Jason Thrun</th>
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<tbody>
<tr>
<td>Date</td>
<td>August 26, 2014</td>
</tr>
<tr>
<td>Program Reviewed</td>
<td>Software Engineering</td>
</tr>
<tr>
<td>A copy of this evaluation was sent to program coordinator or department chair on (date).</td>
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Based on Form B and the recommendations of ASC and AOC, place and X in the appropriate row.

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<thead>
<tr>
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<th>The APC recommends continuing the program.</th>
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Please provide a brief summary of your review including an explanation of and justification for your recommendation above.

The Software Engineering program is an efficient, well-established program. Reviews by the Accreditation Board for Engineering and Technology (ABET), the Assessment Oversight Committee (AOC), and the Academic Standards Committee (ASC) were highly positive.

External Accreditation
The Accreditation Board for Engineering and Technology (ABET) reviewed the program in 2012. One concern was the ability of students to enroll in classes for which they did not meet the prerequisites. This problem has already been addressed through modifications in PASS. A second concern was identifying the student competencies required for successfully receiving transfer credit or test-out credit. This concern has already been addressed. The final concern was low faculty salaries.
AOC and ASC
The AOC and ASC reviewed the Software Engineering program during the 2013-2014 academic year.

- The AOC offered a positive review, categorizing the program as exceeding expectations in regard to their assessment plan. Specifically, the AOC highlighted the positive changes that the program has made based on their assessment plan.
- The ASC categorized the program as exceeding expectations in regard to academic standards. In fact, they, “applaud their efforts to obtain external input from an advisory board to ensure a relevant curriculum, the administration of outcome surveys each semester, the compilation and perusal of course files to ensure consistent standards, the coordinated approach to multi-section courses, and the direct comparison of grades to outcome assessment.” While, the ASC was very satisfied that the Software Engineering program maintained academic standards, they did offer some minor questions for the program to consider for their next in-depth review.

Strengths of the Program
Feedback from their advisory board and surveys sent to graduates and their employers is positive. In addition, the program has dedicated faculty members who are concerned about their students, their discipline, and the integrity of the program. While ABET raised some concerns, the program was accredited. Moreover, the program took immediate steps to address these concerns.

Areas of Concern
The greatest area of concern regarding the Software Engineering program is low faculty salaries. In fact, the low faculty salaries have lead to difficulties in retention of existing faculty. Specifically, three faculty members have resigned over the past two years, in a part due to low faculty salaries.

Substantive Changes since Last In-Depth Review
There have been no substantive changes since the last review.

Future Goals
The program identified its five-year goals as follows:

- Produce graduates that are effective team members, aware of cultural diversity, who conduct themselves ethically and professionally.
- Produce graduates that use effective communication skills and technical skills to assure production of quality software, on time and within budget.
- Produce graduates that build upon and adapt knowledge of science, mathematics, and engineering to take on more expansive tasks that require an increased level of self-reliance, technical expertise, and leadership.

Recommendation
Based on the information provided in Form B along with the responses from ABET, AOC, and ASC the Academic Planning Council recommends continuation of the Software Engineering program.
The Academic Planning Council

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<td>Program Reviewed</td>
<td>Mechanical Engineering</td>
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A copy of this evaluation was sent to program coordinator or department chair on (date).

Based on Form B and the recommendations of ASC and AOC, place and X in the appropriate row.

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Please provide a brief summary of your review including an explanation of and justification for your recommendation above.

The Mechanical Engineering program is extremely vibrant, as evidenced by its incredible enrollment of over 1,000 majors. Reviews by the Accreditation Board for Engineering and Technology (ABET), the Assessment Oversight Committee (AOC), and the Academic Standards Committee (ASC) were highly positive.

**External Accreditation**

The Accreditation Board for Engineering and Technology (ABET) reviewed the program in 2012. The ABET response noted numerous contact hours with students, significant laboratory experiences, and a very positive learning environment as strengths of the program. The ABET report also identified some areas of concern. Specifically, ABET identified a focus on attributes of students at the time of graduation rather than graduates’ achievements several years after graduation as a potential weakness in the program’s assessment plan. Additionally, ABET questioned whether the current number of faculty was insufficient for a program with such high enrollment.
AOC and ASC
The AOC and ASC reviewed the Mechanical Engineering program during the 2013-2014 academic year.

- The AOC offered a positive review, categorizing the program as meeting expectations in regard to their assessment plan. Specifically, the AOC indicated support for the changes that the Mechanical Engineering program has made and continues to make based on their most recent ABET review.
- The ASC categorized the program as meeting expectations in regard to academic standards. While, the ASC was satisfied that the Mechanical Engineering program has maintained academic standards, they did offer some minor questions for the program to consider for their next in-depth review.

Strengths of the Program
Clearly, the popularity of the program is a great strength. In addition, the program has dedicated faculty members who are concerned about their students, their discipline, and the integrity of the program. While ABET raised some concerns, the program was accredited. Moreover, the program took immediate steps to address these concerns.

Areas of Concern
While the popularity of the program is a strength, the unprecedented growth of over 42% over the past 4 years without a proportional increase in resources is problematic. As identified by the program and ABET, the number of faculty members is insufficient to maintain a program of this size. The problem is exacerbated by low faculty salaries. These low salaries present a barrier to hiring new and retaining existing faculty members.

Substantive Changes since Last In-Depth Review
The most substantive change since the last review is the program’s unprecedented growth without proportion increase in resources.

Future Goals
The program identified its five-year goals as follows:
- Increase faculty salaries to a level adequate to retain current faculty and to attract and retain quality new faculty.
- Increase the number of faculty members to a level adequate to maintain the quality of the Program for the current enrollment and for projected growth.
- Laboratory and classroom space and equipment to maintain the class size and hands-on focus of the Program that allows close interaction with faculty members that is responsible for the outstanding reputation of our graduates and the Program.

Recommendation
Based on the information provided in Form B, along with the responses from ABET, AOC, and ASC, the Academic Planning Council recommends continuation of the Mechanical Engineering program.
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Based on Form B and the recommendations of ASC and AOC, place and X in the appropriate row.

- The APC recommends continuing the program.
- The APC recommends conditional continuation of the program.
- The APC recommends elimination of the program.
- The APC recommends suspension of the program.

Please provide a brief summary of your review including an explanation of and justification for your recommendation above.

Microsystems & Nanomaterials program is a novel, interdisciplinary program that is adapting to the unique challenges of a new program. Reviews by an engineering advisory board, the Assessment Oversight Committee (AOC), and the Academic Standards Committee (ASC) were highly positive.

**External Accreditation**

The Microsystems & Nanomaterials program is too young to have been reviewed by ABET, but the program was reviewed by an engineering advisory board comprised of 6 representatives from a variety of industries. The advisory board was very supportive of the program. In fact, the board identified the nanomaterial component of the discipline to be a good niche that fits a real-world need. The board did raise some concerns, but the program has already begun to address each of the concerns.
AOC and ASC
The AOC and ASC reviewed the Microsystems & Nanomaterials program during the 2013-2014 academic year.
• The AOC offered a positive review, categorizing the program as meeting expectations in regard to their assessment plan. Specifically, the AOC identified the assessment plan as solid, citing the use of a capstone course for direct measure of assessment and student surveys, alumni feedback, and an advisory board as indirect measures of assessment.
• The ASC categorized the program as meeting expectations in regard to academic standards. While, the ASC was satisfied that the Microsystems & Nanomaterials program maintained academic standards, they did offer some minor questions for the program to consider for their next in-depth review.

Strengths of the Program
The interdisciplinary nature and the relative scarcity of similar programs is a great strength. In addition, the program has dedicated faculty members who are concerned about their students, their discipline, and the integrity of the program. While an engineering advisory board raised some concerns, the program took immediate steps to address these concerns. Moreover, the board identified the nanomaterial component of the discipline to be a good niche that fits a real-word need.

Areas of Concern
Clearly the most significant concern for the Microsystems & Nanomaterials program is low enrollment. The program continues to take steps to increase the enrollment in either the stand-alone major or the Engineering Physics emphasis. A second concern is that the original funding proposal anticipated DIN money which has been eliminated. This DIN money was anticipated to pay for the expensive equipment required by the program. As such, the college has diverted funds from other resources to cover the deficit. Finally, low faculty salaries is concern for the program.

Substantive Changes since Last In-Depth Review
This is the first in-depth review for the Microsystems & Nanomaterials program.

Future Goals
The program identified its five-year goals as follows:
• Implement and adapt the full curriculum for the micro/nanomaterials emphasis, working with constituency (employers, alumni, students).
• Nurture and grow an active, supportive industrial and academic advisory board that can guide program development, as well as provide contacts for identifying positions for our students (internships, co-ops, and full-time).
• Grow student numbers, such that enrollment in upper-division courses is similar to the historical norm in other EP courses.

Recommendation
Based on the information provided in Form B, along with the responses from their advisory board, AOC, and ASC the Academic Planning Council (APC) recommends conditional continuation of the Microsystems & Nanomaterials program. We believe the Microsystems & Nanomaterials program is harmonious with the overall mission of the engineering program as a whole, but the APC is very concerned about the low enrollment. The APC expects to see a significant increase in the number of students enrolled in the major or the emphasis before the next in-depth review and will monitor progress through the review of Form A.