

Annual Assessment Report

Department: Physics & Engineering

Academic Year: 2020

Date of Submission: Sept 15, 2020

Department Chair: Kenneth Kihlstrom

I. Response to the previous year PRC's recommendations

<p>Item: Now that a mechanical engineering major has been approved, we recommend that you re-visit your Program Learning Outcomes in the next two years and determine whether they adequately express the desired outcomes for both physics and engineering majors</p>	<p>Response: Before long we assume that engineering will split off, if not as a separate department, at least in terms of SLO's and assessment procedures to bring it in line with ABET accreditation requirements. So, the point is well taken and in response the current SLO's for physics will not be adequate for the engineering program. In addition, it is certainly possible as the turnover of physics faculty becomes complete, the new faculty might decide to modify the departmental mission statement, SLO's, etc.</p>
<p>Item: Given the anticipated turnover in department faculty, we recommend that current faculty devise a set of Key Questions and an Action Plan by the summer of 2019 but plan to re-visit and revise as appropriate those materials on an annual or bi-annual basis as new colleagues join the department. That will ensure that the new colleagues have experience in this work by the time current faculty retire.</p>	<p>Response: The current key questions revolved around getting the Engineering program approved, funded, staffed and ultimately ABET accredited. In addition, there are the needs to hire three physicists and a lab coordinator in the next two or three years. As these faculty positions are filled we then need to act on the PRC recommendations going forward to determine the mission statements of both programs as well as the PLO's, revised assessment plans. As of this moment, we have hired Dr. Robert Haring-Kaye in physics who started in the last few weeks. In engineering we have recently secured Dr. Dan Jensen who will come aboard next (2021) fall. In the interim, Dr. Adam Goodworth in Kinesiology has assisted up in the new engineering program.</p>
<p>Item: In light of the many open-ended questions facing the department over the next six years, we recommend that it continue to seek the advice and wisdom of colleagues at peer institutions regarding how best to design and develop the engineering program and make it compatible with the existing</p>	<p>Response: We have received advice from Messiah College (very useful) and Point Loma (less so) as well as cautionary tales from George Fox but will continue to reach out especially to Christian liberal arts colleges that have gone down the road of full engineering programs. But in addition, the key issue is really going to be obtaining ABET accreditation when we have our first graduates.</p>

physics program.	
Item: The next alumni survey results should be subjected to a more thorough analysis, and the department should identify more explicitly possible changes based on their findings.	Response: This is applicable to the next six-year report.
Notes:	

II A. Program Learning Outcome (PLO) assessment

If your department participated in the ILO assessment you may use this section to report on your student learning in relation to the assessed ILO. The assessment data can be requested from the Dean of Curriculum and Educational Effectiveness.

Program Learning Outcome	Critical Thinking:
Who is in Charge /Involved?	Dept Chair
<u>Direct Assessment Methods</u>	MFT exam
<u>Indirect Assessment Methods</u>	None this year
Major Findings	None: Due to Covid 19 and the inability to proctor the MFT exam, the Educational Testing Service prohibited the giving of the exam in the spring
Closing the Loop Activities	
Collaboration and Communication	

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or/and

II B. Key Questions

Key Question	The first two key questions since the six-year report were 1. Can we get the Engineering Program approved and 2. Can we get the Engineering Program funded?
Who is in Charge/Involved?	All departmental faculty as well as Eileen McQuade in the Provost Office and Reed Sheard in College Advancement
<u>Direct Assessment Methods</u>	1. Did it get approved? 2. How are we doing on fundraising?
<u>Indirect Assessment Methods</u>	How broad is the support among the faculty?
Major Findings	<ol style="list-style-type: none"> 1. Both the Academic Senate and the Faculty as a whole gave overwhelming (but not unanimous) support. But that was at the end of a process. The greatest concern was that the introduction of an engineering program not undermine the fundamental liberal arts character of the college. Some of these concerns were alleviated by requiring the engineering students to fulfill the full GE requirements as all other students (the initial proposal allowed some reduction). Assurances were given that the program would not be “siloeed” off from the rest of the campus and certainly encourage the new engineering profs to be involved in the full life of the college. 2. We have a \$950,000 grant submission that we expect to hear about this November. Likelihood is 90% or higher. It will go to the construction of the new building to house engineering and \$125,000 in equipment. We are also building a list of 12-20 donors who we are hoping to secure another \$400K along with approximately \$100K annually to help with ongoing program costs. All told we hope for approximately \$2m in FY21 and FY22. This is the beginning of the funds needed but represents a promising start. Nonetheless we will ultimately need on the order of \$5-8 million to fully fund the program.
Recommendations	Promises of upholding the liberal arts nature of the program are important but following through is more so. Adam Goodworth is giving one of the PKP talks this year (a good start) but this spirit needs to continue as we hire the new

	faculty. On the fundraising the push will need to continue so we don't burden the college operating budget.
Collaboration and Communication: All members of the program have been involved in ongoing discussions.	

III. Follow-ups

Program Learning Outcome or Key Question	<ol style="list-style-type: none"> 1. Approval of the engineering program 2. Fundraising
Who was involved in implementation?	All department members as well as Eileen McQuade and Reed Sheard
What was decided or addressed?	<ol style="list-style-type: none"> 1. In the search for new faculty the search committee included strong voices for the liberal arts and each candidate was questioned on their views and understanding of the liberal arts and their responses played an important role in the committee's evaluation. Offers were only made if the candidate showed a clear passion for an engineering grounded in the liberal arts. 2. The fundraising approach includes capital equipment upfront, facilities needs, endowment for staffing and ongoing operating expenses.
How were the recommendations implemented?	<ol style="list-style-type: none"> 1. See previous statement. 2. Fundraising outreach included both grant proposals to foundations as well as to prospective donors.
Collaboration and Communication: All departmental faculty we involved and there we ongoing discussions with Eileen and Reed.	

IV. Other assessment or Key Questions related projects

Project	Hiring new faculty
Who is in Charge /Involved?	Search committees for both physics and engineering. All departmental faculty were included on the search committees.
Major Findings	We were successful in hiring Dr. Robert Haring-Kaye who brings a wealth of experience from Ohio Wesleyan as well as an active research program. In engineering we have hired Dr. Dan Jensen who was central to the mechanical engineering program at the Air Force Academy. Dr. Haring-Kaye began in August. Dr. Jensen has been consulting with us this past year and will this academic year but has also recently accepted an offer to come full time in the fall 2021. We will have active searches this coming academic year for both physics and engineering.
Action	see major findings
Collaboration and Communication: All departmental faculty were involved.	

V. Adjustments to the Multi-year Assessment Plan (optional)

Proposed adjustment	Rationale	Timing
Critical Thinking-move to 2020-21	ETS prevented us from using MFT in the spring due to Covid 19 issues.	Spring 2021

VI. Appendices

- A. Prompts or instruments used to collect the data
- B. Rubrics used to evaluate the data
- C. Relevant assessment-related documents (optional)