

## **Program Performance Review: Culmination Meeting Memo Mechanical Engineering MS program**

The 2022-2023 Program Performance Review (PPR) process for the Mechanical Engineering MS program in the College of Engineering and Computer Science (ECS) concluded with a culmination meeting on April 12, 2024.

The following people attended the meeting: Amir Dabirian (Provost), Susan Barua (Dean, ECS), Sang June Oh (Associate Dean, ECS), Kiran George (Associate Dean, ECS), Chean Chin Ngo (Department Chair), and Su Swarat (Senior AVP for Institutional Effectiveness and Planning, SAVPIEP).

The Provost congratulated the program for completing the PPR process. The following specific accomplishments were highlighted during the PPR process:

- The program continues to be one of the main MSME programs offered in Southern California, preparing qualified MSME graduates.
- The program and its faculty demonstrate commitment to student success and to providing quality, high-impact teaching and research experiences.
- The faculty and their interests are diverse, motivated, well-qualified, and enthusiastic.
- The program is commended for implementing recommendations from the last review and for new initiatives to improve various aspects of the program.
- The program has a systematic and periodic assessment process that utilizes direct and indirect measures to capture the development of hard and soft skills needed to enter the engineering workforce.
- The program offers great research and professional development opportunities in collaboration with top high-tech industries and is innovative in creating appropriate research spaces.

Major recommendations raised through the PPR process were discussed as follows:

### 1. Enrollment:

- The program has been able to sustain stable enrollment, which is commendable. The Provost inquired about the program's potential to grow. The SAVPIEP asked for the "ideal size" of the program.
- The Chair stated that the ideal size depends on faculty support for thesis/project supervision and mentoring, though 120-150 would be the target range. The program is moving towards project-based curriculum to allow for more growth and opportunity for graduate thesis/project.
- The Chair commented that international students are key to the success of the program because they are more likely to graduate on time. This contrasts with the longer time to graduation by domestic students. The Dean added that international students require additional staffing and infrastructure support, which needs to be considered when determining enrollment growth.
- The Associate Dean suggested the possibility of adding a 4+1 program to help secure enrollment. The Chair concurred and commented that this would also support undergraduate program recruitment.

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2. Support for students with non-mechanical engineering backgrounds:
  - The external reviewers encouraged the program to review the courses and units required for admission to ensure prospective graduate students with non-ME backgrounds have alternative equivalent options.
  - The Chair stated that for students from non-mechanical engineering background, the program requires them to complete the bridge courses (12-15 units) after matriculation. The program is looking at how to reduce bridge course requirements, and how to help them take some of the required courses at community colleges.
  - The Provost and the Dean suggested establishing partnership with community colleges to do so. For example, a “package” of bridge courses and required courses would be identified and offered at partner community colleges at the time of recruiting students. This would help provide a clear “pathway” for interested students.
  - The SAVPIEP suggested the program to reach out to the Health Profession advising office on campus and follow its model to help guide interested students into engineering graduate programs.
  
3. Faculty hires:
  - The PPR process identified the need for the program to hire faculty for emerging mechanical engineering areas.
  - The Chair reiterated the need, especially for the manufacturing area, but cited the challenge of non-competitive salary.
    - o The Provost acknowledged the challenge, and shared the potential concern that increasing salary for new hires will lead adjustments for other faculty. One approach to alleviate this issue is to offer summer and intersession teaching assignments. This is an area the program could consider expanding so that additional income could be provided to faculty.
  - The Chair also voiced the need for better start-up package, because \$30-40K is not sufficient for experiment-based research.
    - o The Dean shared that there is room for increase for mechanical engineering start-up package, but the challenge is for faculty to use their start-up in the first two years.
    - o The Associate Dean suggested that this is partly due to the heavy workload in preparing new course in the first year, resulting in delayed start of research for new faculty.
    - o The Chair reported that the department has been very strategic about bringing in faculty who can realistically do research at CSUF, and will work with the Dean’s office to encourage research launch and support for new hires.
  
4. Research opportunities for students:
  - The external reviewers recommended the program to work with college leadership, particularly the new Associate Dean for Graduate Programs, Faculty Research and Innovation, to collaboratively and strategically implement plans for continuous improvement and growth, such as developing a support model to encourage and promote faculty to work with students on research.

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- The Dean concurred, reported that the college already gives credit to faculty who do research with students, and provides incentives to encourage faculty to work on externally funded research, which students can participate.
- The Dean also recommended the faculty to work with the new Associate Dean to develop proposals to local industry to seek funding for student research projects. The new Associate Dean's success in doing so could help guide this effort.

The Dean commended the program for its continued contribution to the university. The Provost concluded the meeting by thanking the Chair for his leadership.