Date: June 18, 2012

To: Dr. Dianne Harrison  
    President

From: Dr. Cynthia Rawitch  
      Vice Provost

Subject: Final Memorandum of Understanding – MS Materials Engineering

The final phase of the program review process for the Master of Science in Materials Engineering occurred on March 27, 2012. At this time the commendations and recommendations from the external reviewers' report were discussed. Present at the meeting were: Cynthia Rawitch, Vice Provost, Academic Affairs; S.K. Ramesh, Dean, and Nagwa Bekir, Associate Dean, College of Engineering and Computer Science; Behzad Bavarian, Chair, Department of Manufacturing Systems Engineering & Management; Merrill Simon, GSC Representative; Kang Chang, Faculty, Manufacturing Systems Engineering & Management; Bonnie Paller, Director of Academic Assessment and Program Review; Mack Johnson, Associate Vice President of Graduate Studies; and Dave Ballard, Program Review Coordinator.

Dr. Rawitch congratulated the program on its many strengths as identified by the commendations in the external reviewers' report. A discussion of the reviewers' commendations and recommendations followed.

The attached MOU is the final understanding between the department and the college.

Attachment: MOU

Cc: S.K. Ramesh, Dean, College of Engineering and Computer Science  
    Behzad Bavarian, Chair, Department of Manufacturing Systems Engineering & Management  
    Merrill Simon, GSC Representative  
    Bonnie Paller, Director of Academic Assessment and Program Review
Master of Science in Materials Engineering
Program Review – 2011-2012

Memorandum of Understanding

Commendations

1. The program and faculty provide a well-integrated knowledge of materials science to students.

2. The faculty should be commended for the excellence of the program. Faculty members have laudable research/publication records as well as strong teaching evaluations.

3. The lecturer faculty are highly qualified to teach their assigned courses.

4. The program has increased the number of majors by 42% since the last review.

5. The program is structured to provide the students with a combination of excellent hands-on experience and a strong theoretical background. The students are happy with the quality of the laboratories and the hands-on experience they receive.

6. The program generates graduates who are well prepared for employment in industry as well as for the pursuit of a doctoral degree in materials science.

7. The program’s structure reflects the dynamic nature of the field. Faculty keep up with the advances in their field in order to transfer up-to-date knowledge to their students.

8. The program has added two new courses in rapidly growing fields, nanomaterials and nanotechnology (MSE 556) and introduction to advanced biomaterials (MSE 536).
9. Despite the statewide financial difficulties that public universities presently face, the faculty are pursuing and gaining grants. These outside support resources are an important part of the program’s financial health.

10. The program has created Student Learning Outcomes for assessment. These are clearly articulated in the program assessment plan. The faculty members use the MSEM Course Assessment Form to record the change in students’ learning outcomes and to make recommended changes. The program is commended for following ABET’s assessment format.

11. The synergistic collaborative activities with industry, availability of excellent facilities and equipment, and proven record of dedicated faculty make the program one of the most promising in Southern California.

Recommendations

1. The program should strive for a further increase in enrollment and couple that effort with the hiring of a full-time faculty member. The program should consider finding faculty with expertise in solid state physics and simulations in materials science.

2. The program should consider a curriculum modification. Currently, some of materials related to solid state physics are covered in various courses. However, a course dedicated to solid state physics may prove valuable to the students’ education. Until such growth and a new hire transpire, the graduate level course offered by the Department of Physics and Astronomy, Physics 680, might be added to the list of acceptable electives.
Understanding: Physics 680 is not ideal for all Materials Engineering graduate students and there can be pre-requisite issues. Necessary materials and information are included in two other courses.

3. While grant funding is highly desirable and much needed, it is important to plan for secession funding for grants that term out. In particular, the program's equipment maintenance costs are closely tied to grant funding. The program should seek a greater portion of the equipment maintenance cost to be covered by the institution to insure the continued use, calibration and maintenance of this critical equipment. The program should look into setting up accounts for user fees to pay for service contracts in the future.

4. More students need financial support through institutional scholarships or grants. This support will help them to devote time to their studies/research and not on employment outside the University.

5. The faculty are stretched too thin. While they excel in teaching different subjects, they also spend a large portion of their time reviewing subjects and preparing for courses that do not immediately impact their research. This could be harmful to their grant-getting ability if continued indefinitely.

6. The program should step up grant-seeking efforts in order to increase financial support for the professional preparation of minority and underserved students.

Understanding: Recent HSI-Stem grant from the federal government has helped in this area.

7. Since the College is growing, college-wide group activities may facilitate solidarity and promote collaboration. Such activities may be useful in ensuring group cohesion among
programs, departments and faculty members. Such friendly discussions could be very useful in bringing together the faculty members from various departments and programs within the college.