January 22, 2015

UCLA Mechanical and Aerospace Engineering Department
Industrial Advisory Board Meeting

Attendees: Wayne Goodman (The Aerospace Corporation), Luke Haylock (Alcoa), Steven Yahata (Boeing), Geoffrey McKnight (HRL Laboratories), Ingo Foldvari (National Instruments), Timothy Frei (Northrop Grumman ASD), Steve Toner (Northrop Grumman ESD), Alan Johnson (Raytheon), T-C Tsao, Chris Lynch, Ted Iwasaki, Ajit Mal, Ann Karagozian, Jacob Speyer, Bill Goodin (UCLA)

Dean Dhir:
UCLA Engineering Online Master’s Program was recently ranked number 1 in the nation by U.S. News and World Report.
The Times Higher Education world rankings of engineering and technology schools placed UCLA first among U.S. public universities, fifth overall in the country, and ninth in the world for 2014-15.
The student project space on the second floor of Boelter Hall will be expanded from 5000 square feet to 10,000 square feet in the near future.
Two new research centers have been established in the School of Engineering, Center for Information and Computation Security (CICS) and Center of Excellence for Green Nanotechnologies (CEGN).
The annual Engineering Tech Forum will be held on Tuesday, February 3.
Engineering IV Phase I building will be dedicated on March 19.

Prof. T-C Tsao:
(PowerPoint slides are available)
Much interest in and discussion about the MS On-Line Program (MSOL) among the group.
About 100 students enter the program each year.
Seven percent of the students are from outside of the US (mostly Canada).
The average class size is about 16 students.
There is little interest in creating an online undergraduate program because those students need much more personal interaction with faculty in the learning process.

ABET Accreditation found no problems with mechanical engineering curriculum
However, they requested that more space courses be made available as electives for aerospace engineering majors.

Northrop Grumman may be willing to let UCLA students use their new Fab Lab in Redondo Beach, which is now only open to their employees.
The Department needs machine tools and 3-D printers
The Department would like to create a student design and prototyping studio.

Prof. Ajit Mal:
Undergraduate program
Prof. Mal described the statistics on the number of student applications, admissions, and enrollments.
His charts are all included in his PowerPoint presentation.

Prof. Ted Iwasaki:
Graduate program
36 Department Fellowships offered (22 accepted)
17 Non-resident tuition offers made (11 accepted)
7 Cota-Robles Fellowships for PhD students
1 GOFD Fellowship for MS student

Approximately 900 applications were submitted to the Department this year; the increase is due to increase in foreign mechanical engineering applications
Approximately 350 students were admitted this year; the increase is due to increase in foreign mechanical engineering applications
Nearly all domestic students, who are qualified, are admitted.
The number of degrees awarded is gradually increasing
The MAE graduate student population includes 14 percent female and 9 percent minority, which is consistent with national statistics.
What percentage of graduating students have jobs? The Department does not have that information.
The defense companies cannot support research that involves foreign students due to ITAR regulations. His charts are all included in his PowerPoint presentation.

Prof. Jacob Rosen
New faculty member. Research areas: Robotic surgery and stroke recovery
PowerPoint presentation is included.

Prof. Xiaochun Li
New faculty member. Research areas: Materials processing, additive manufacturing, and nanotechnology
PowerPoint presentation is included.

Prof. Yongjie Hu
New faculty member. Research areas: Device transport, systems, and materials. Energy conversion and thermal management. Battery safety
PowerPoint presentation is included.

Student Group Presentations:
PowerPoint presentations are included.

Aerospace Engineering Major Curriculum
Discussion on ways to improve the aerospace engineering major, as required by ABET.
Aerospace senior design courses are not well coordinated among the faculty. What is the correct sequence of these courses: 154S, 154A, 154B, 157A?

MAE Curriculum in General
Steve Toner wants UCLA graduates to graduate knowing the analytics and eventually become technical leads.
Students need to understand the business constraints that affect technical design.
Luke Haylock suggested that a course on Design of Experiments would be valuable.
Add data systems and embedded systems courses?
Can a student club project be used as a credit course?
Three Technical Breadth courses outside of MAE are required for all students. Majority of students choose technical management series for their TB. Should the Department encourage students to choose EE or CS as their TB?

The suggestion was made that the Department should infuse hardware into lab courses throughout the four years using National Instruments hardware kits or some similar product.

It is important that the Department maintain high standards on teaching the fundamentals of engineering, particularly those areas that cannot be readily learned in industry. Students with solid engineering backgrounds are much better equipped to continue the learning process in industry and to adapt to changing engineering demands by industry.

**General Discussion**

The suggestion was made that IAB members might present data from their companies to the student leaders on who they hire and what levels they attain within the company.

The IAB members will be invited to MAE Open House on Sunday, April 13, to meet the admitted high school seniors and their parents.