



## **Department of Mechanical Engineering Industrial Advisory Board Meeting**

**Friday, April 5<sup>th</sup>, 2002  
Mechanical Engineering Conference Room – EAS 3327**

**In Attendance:** Dr. Munroe, Dr. Zampino, Dr. Chen, Stanley Satz, Charles Tomonto, Nigel MacDonald, Dr. Cao, Dr. Levy, Dr. Crumpler, Bob Breaslauer, Dr. Rincon, John Nix, Dr. Tansel, Carmen Schenck, Dr. Carnegie, and Dr. Wu.

Meeting commenced at 12:11 PM.

### **1- Introduction by Dr. Munroe:**

Dr. Munroe thanked board members and faculty for making every effort to attend this meeting. Dr. Munroe informed the faculty and members present that the September meeting had been very fruitful and the department was able to acquire very useful information from the board, which has been utilized to make adjustments to the curriculum. The department is looking forward to the members providing further information, useful suggestions and recommendations, so that we can continue with the ABET process later in the year.

Dr. Munroe reminded those present of the mission of the Industrial Advisory Board, which is basically to examine and review aspects of our curriculum and to make recommendations so that we are able to better advise and instruct our students.

Dr. Munroe presented a brief agenda for the meeting:

- Introduction of the Members of the Board
- Break for Lunch
- Educational Objectives for the Department (ABET attachment)

Dr. Munroe introduced the board members and each attendee introduced himself and gave a brief synopsis of his field and teaching/research experience.

Dr. Munroe informed those present that the Faculty Senate had recently approved the Masters in Materials Science Program, which will soon begin in the Mechanical Engineering Department. The program will now go before the Board of Trustees for approval. We have also started to recruit new faculty for the ME Department and the Materials Science Program, with the hiring of two faculty members within the next month. An additional two faculty positions are being advertised for the Materials Science Program. Dr. Munroe advised of the Chemical Engineering Program being placed on hold for the time being and that Biomedical Engineering continues to be part of Mechanical Engineering Department until it goes through the accreditation process and becomes a separate unit.

Regarding faculty productivity, Dr. Munroe informed the members that the department currently has 14 tenured/tenure track faculty, 3-4 adjunct faculty and over the last year we have had approximately \$1.5 million in grants and 44 publications, which equates to approximately \$107k per faculty, and 3 publications per faculty. Mechanical Engineering student enrollment: 150 undergraduates, 60 BS graduates last two semesters; presently we have 30 Masters students and 12 PhD, graduating an average of 1 Ph.D. student per year. Dr. Munroe also mentioned that many of the companies represented in the board have hired ME graduates.

### **Break for Lunch**

### **Main Agenda Item - Educational Objectives for the Department**

Dr. Munroe began by informing those present that the department is currently in the process of preparing the ABET Self Study Report. The last page of the handout included a schedule of dates for the completion of tasks. The request for the ABET visit has already been submitted by the Dean's Office which was in January of this year. We are currently working on the first draft of the ABET report which is due by the end of this month in the Dean's Office. The final submission date, after the Dean and the Provost have read and reviewed, is in July and the visit is scheduled for the Fall.

The first page of the program's objectives outlines, Objectives, then one of the other ABET requirements after Objectives is Assessment of the Program and Outcomes.

Dr. Munroe began by asking some of the company representatives how have they found FIU graduates in terms of in-depth knowledge in Engineering in various fields, for example, fluids and thermal sciences, mechanics, biomechanics, etc. Is there a general feeling of what companies would like to see in the graduates, where we can place more emphasis?

Dr. Wu, referring to the 7 department's educational goals requested input from member's as to whether the 7 objectives actually reflect the contemporary needs of industry. This will help to shape the strategies and policies by which we mold our future graduates.

Mr. Tomonto suggested that students need machine shop training. Mr. Breaslauer acknowledged that students nowadays do not have real life experience with machining. Dr. Zampino reminded those present of the minutes of the previous meeting and the points raised regarding business skills, machine manufacturing and communication skills. He stated that Mr. Nix articulated in the last meeting that "it was up to the department to find a way to make it work inside the system, you all have your agenda, but you need to understand our constraints." The department's constraints need to be identified and then find a way to go around them or how we fix them. Discussion regarding the availability of the MRC and machine shop training ensued.

Mr. Nix recommended that Dr. Munroe draft a letter for the Advisory Board's signatures that states that we find it would be very useful if the Mechanical Engineering department had a machining lab/workshop.

Dr. Munroe asked the industrial board members how they could serve the department in terms of a variety of services, for example: internships, presence at Senior Design seminars, financial support, etc.

Dr. Crumpler presented a couple of items to the board members, in mentioning internships. BMEI will be starting a pilot internship-type program, where the company is sponsoring the student to work in the lab at FIU in a project that is beneficial to the company and to the PI. This aspect is important because not only is the student trained, but the student is trained toward objectives for the company, which can be easily transferred to the company if the students receives an employment offer from the company. Another support mechanism would be letters of support from companies to our grants. This supports the PI's grantsmanship in an indirect way, as well as the industrial associate or member; because if the grant comes through, part of the grant can be used toward research centered on the company's needs. It is not necessarily a financial commitment from the company that is required, but the collaboration can be beneficial to the company, the university, and the students.

Dr. Munroe reiterated that the department is open to suggestions on how the Industrial Advisory Board can work closely together to bring about a better experience for ME students. Dr. Munroe expressed that his task is to ask the board and faculty to look for ways to have a better relationship, that in the end is useful to the undergraduate student.

Dr. Crumpler suggested an internship for machine shop training.

Mr. Nix suggested: Put together a matrix that would list 10 things: sponsorships support for students, letters of support for grants, industrial forum, research partnership tours, internship, and allow the members to review it and sign our names to the area where we think there might be an opportunity at our company, and use this in your data. This will allow the members to say what is useful to them and the faculty can then even place it in their curriculum. It is imperative that the department tells industry exactly what it needs.

Nigel MacDonald questioned the internship process. Mr. Tomonto advised that Cordis has a Co-Op program (two-slots are currently open), which is a logical way to get people in to see what they can offer and put some money in their pocket and give them an opportunity to show what they can do. First semester Senior-type, or September graduate are basically the students sought after.

Nigel MacDonald posed the question: What is the college doing to motivate the students to apply for these jobs? Dr. Munroe and Carmen Schenck advised that Leslie Diehl in the Dean's Office is currently handling Career Services and providing the students with information on positions available to them.

Dr. Zampino posed the question regarding software: Mr. Tomonto recommended that students need to know Excel and possess a working knowledge of Abaqus for computation of data. There is also a need for 3D drawing software knowledge (ProE, Autocad). Internet experience in design problems is also needed. A discussion followed on software instruction and modification of the wording in the Educational Objectives of the department.

Nigel MacDonald posed the question regarding business costing. Carmen Schenck advised the board members that an Engineering Economics course is requirement for all students. Dr. Munroe asked Nigel if he found it necessary to include "cost assessment" as one of the requirements. Mr. Tomonto advised that he doesn't think that entry-level engineers are very much concerned with that, but once they enter some level of management they will always be looking at some kind of payback. But to highlight the data they use, it's all industrial engineering based. Mr. Nix stated that objective #5 is really about articulation, the ability to articulate, whether its talking about technical matters or cost effectiveness. Cost effectiveness is always a part of the design. Mr. Nix suggested that the "technical matters" in point 5 of the objective be changed to "engineering information" or "engineering project information".

Dr. Wu requested some discussion and input on Point #7 due to its broad description. Mr. Tomonto highlighted the fact that he was the Chairman of the American Society of Mechanical Engineers in Miami and the local organizations are not doing very well from the industrial side. "ASM is no longer running these days, they've actually closed down. If they were to have a strong tie to the

University, if the University took a leadership role in the society, and got it running again, the University would get the logical pull from industry.” Mr. Nix added, “one thing the department does do very well, you have a very successful FIU ASHRAE chapter, which has won several national designs, I think that is an excellent opportunity to leverage a lot of the professional environment and teach students social responsibility.” The department still needs to encourage student membership in order to transfer to professional membership.

Discussion followed regarding work ethics in the classroom, and posting these throughout the classroom including the posting of the FIU Mission Statement and the formation of a departmental or college-wide Board of Ethics.

Dr. Munroe reiterated the listing of the Action Items for this meeting:

- 1- Development of Matrix
- 2- Letter to the Dean
- 3- Code of Ethics and reinforcement in the Intro Course
- 4- Using computational analysis
- 5- Internet Experience

Dr. Munroe thanked all present for their participation and attendance at this meeting.

**Meeting adjourned 3:02 PM.**