Department of Biomedical Engineering

Biomedical Engineering Partnership Program
Advisory Board Executive and Strategic Planning
Committee Meeting Minutes

Date: October 30, 2007
Location & Time: Engineering Center – Conference Room 2461
Attendees:
Galvez, Santiago - Beckman-Coulter, Inc
Herrera, Raul – Miami Children’s Hospital
Horstmyer, Jeffrey – Mercy Hospital
Jayakar, Prasanna – Miami Children’s Hospital
McGoron, Anthony – FIU Biomedical Engineering
Teague, Jane – Enterprise Development Corporation

Welcome

Dr. Anthony McGoron began by welcoming everyone to the first Advisory Board Executive and Strategic Planning Committee meeting. Dr. McGoron set the motion to approve the agenda for today’s meeting. All were in favor of the agenda. Dr McGoron also welcomed Raul Herrera, Chief Research Officer of Miami Children’s Hospital, as a new member to the BME Advisory Board.

State of the Department and Programs: BME the First 10 Years

Dr. McGoron presented a brief history of biomedical engineering at FIU from the outline given to each member. Today, the FIU BME program is the largest and most dynamic BME program in Florida, and a national model for partnership with the biomedical industry. It is the only state university with BS, MS, and PhD programs in BME. Currently, BME has six full time professors with one leaving in spring 2008 and two half-time (but actually providing 100% involvement with BME).

Interim Dean

Interim Dean Amir Mirmiran provided an update on the transition within the College of Engineering. Dean Prasad left the college last week and at the same time, 7 different programs are up for accreditation. Dean Mirmiran wants to bring more stability to the administration and the search for a new Dean will start in the spring with appointment beginning in 2009. In terms of state of the college in measures of success: Faculty with research grants as PI or Co-PI was only 40% in 2001 but increased to 75% in 2007. College of Engineering has 2 research centers: one in the engineering building (ARC, Applied Research Center) and the other with International Hurricane Research Center.
The Dean stressed the importance of working with ARC as a research resource. The College of Engineering had significant growth in funding, enrollment increased in both national and international trends. Interim Dean Mirmiran sees Biomedical Engineering growing and an increase in faculty to 12-15.

BME needs more resources to recruit and fill the chair and instructor positions. We need to bring the department to the next level: by doing alumni surveys, employer surveys, and advisory board surveys.

ABET wants departments to demonstrate how the students are learning in the program. More internships and input from the advisory board. Beckman-Coulter has programs for FIU students: more Electrical Engineering, Industrial, and Mechanical than Biomedical participated in a recent tour there. Dr. McGoron would like advisory board to have more involvement, contributions, and program improvement. BME has no formal internship program. But, it is something we need to work on. Santiago Galvez offered to work with Dr McGoron (and the undergraduate advisor) to get the word out on internships with Beckman Coulter.

The Dean commented on the close collaboration between the Department and Miami Children’s Hospital Brain Institute and the joint faculty position held by Dr Lin. Dr McGoron pointed out that Dr Lin has two related research projects and two laboratories, one at FIU and one at MCH. The Dean expressed his desire that the model could be replicated at other places like Mercy Hospital. Jeffrey Horstmyer discussed with Dr McGoron to possibility of a similar joint position with Mercy.

The Committee Structure
Dr McGoron reviewed the committee structure (attached below). Santiago commented that hopefully with smaller and more focused committees, members could have more specific items to work on so that tangible outcomes could result from the meetings. Members need specifics on how they could be more involved, with specific action items. Dr McGoron promised to work on that.

Chair and Junior Faculty Search
Interim Dean Mirmiran suggested encouraging potential candidates for the chair position.

Center of Excellence
The Florida Center of Excellence program started in 2003. FIU submitted a proposal with UF (UF as the lead) on Bio-Nano but it was not funded. Another round was conducted in 2006 and FIU submitted a Bio-Nano proposal with UCF, with FIU as the lead. It was not funded. UF’s Bio Nano sensors were funded. This year (2007) the state is having another round and FIU will submit a proposal with UCF, and MDC on sensors for toxins. Joe Leigh Simpson, Executive Associate Dean for Academic Affairs, College of Medicine, will be the PI. Dr McGoron will be Co-Director with Jay Hickman from UCF. The proposal is due Dec 3. Dr Simpson also holds the Coulter BME Distinguished Professorship in Bioinstrumentation and Biomeasurement. The BME department will work very closely with the College of Medicine. The proposal is similar to the proposal from last year but de-emphasizing the nano.
Enterprise Development Corporation

Jane Teague gave the status of the Biotech event. It was held at FAU for the past 2 years and FIU is hosting this 3rd year event. It is scheduled for April 24, 2008 and expecting over 300 to attend this event in the Graham Center. Jane asked what the potential theme of the meeting would be. What are the strengths of College and Department? Nano, the new medical schools in the state.

Strategic Planning
The remainder of the meeting focused on the strategic priorities for the department. The Dean had mentioned previously that the College will be formulating its strategic priorities and that each department should formulate theirs in line with the College’s. The committee recommended that the Departmental priorities should include what our industry and clinical partners are doing. The updated departmental Strategic Research Priorities that Dr McGoron formulated from his notes of the meeting are attached. These will also be reviewed at the BME yearly retreat in December. Jane suggested that the EDC could be involved in helping us develop our strategic priorities.

It was suggested that a bulletin board be added to the BME website so the BME advisory board and industry/clinical partner members can share their own goals with respect to the BME program. This could serve as a means for the department and industry/clinical partners to know what resources are available and what types of projects could be developed. There was general agreement that more collaborative projects could be developed if we knew what each other was doing. In particular, the opportunity for senior design projects with companies and clinical partners could foster greater collaborations with the BME faculty. One of the Coulter endowment accounts is for funding new projects between BME faculty and industry partners (CTIP - Collaborative Technology Innovation Program - $50,000 per year). We need to have this program this year.

All agreed that FIU need improvement in their IP office. The Dean mentioned that the IP office was to develop a Fast Track mechanism that should decrease the time for decisions on promising inventions. The problem is that it takes such a long time to make a decision, that by the time the university releases the rights, there is no time for the inventor (faculty) to pursue the invention (patent application) on their own.

Member questioned why the department is not working more closely with Scripps. Dr McGoron agreed that we need to work harder in that area and that the new College of Medicine may help.

Meeting Adjournment @ 11:23 am
1997 $250,000/year for three years from a Quality Improvement Program Award by President Maidique – established Cardiovascular Engineering Center as a resource to the cardiovascular device industry in South Florida

1998 $100,000 gift from Norman Weldon, co-founder of Cordis Corporation, to support biomedical engineering undergraduate research assistants

1999 $1 million Special Opportunity Award from the Whitaker Foundation -established the Biomedical Engineering Institute as the administrative unit for the biomedical engineering programs

MS program established – 75+ graduates, currently enrolls 35 students

2001 $10 million gift from the Wallace H. Coulter Foundation (including 100% match from the state of Florida) -supports endowed faculty positions, scholarships and fellowships, research seed funding, lecture series, and infrastructure for biomedical engineering

2002 $600,000 NSF Partnership for Innovation Award – established the Biomedical Engineering Partnership Program – current membership includes 35+ clinical organizations and biomedical companies. Also established the Institute for Technology Innovation, a unit of the Pino Global Entrepreneurship Center

BS program established – 50+ graduates, currently enrolls 150 students

2003 The Department of Biomedical Engineering was established to replace the Institute as the administrative unit for the biomedical engineering programs

2004 PhD program established – 1 graduate, enrolls 26 students

Miami Children’s Hospital funds the MCH Professorship in NeuroEngineering, a joint faculty position between MCH and FIU Biomedical Engineering

2006 $1.4 million gift from the Ware Foundation (including $400k match from the state of Florida) established, and permanently supports a post-doctoral fellow, in the Laboratory for Brain Research and Neuro-Engineering Applications

BS program receives ABET accreditation in fastest time possible, with no concerns or weaknesses

Annual research awards total over $1.8 million -$200,000 per FTE tenure-track faculty line

2007 $1 million awarded from the Florida 21st Century World Class Scholar Program – for establishment of joint BME/College of Medicine faculty position for the new Wallace H. Coulter Professor, Dr. Joe Leigh Simpson

Today the FIU BME program is the largest and most dynamic BME program in Florida, and a national model for partnership with the biomedical industry. It is the only university within the SUS system with BS, MS, and PhD programs in BME.

FIU Biomedical Engineering Advisory Board
Proposal for a Committee Structure

Purpose:

- To further the missions of the Department and Partnership Program
- To provide opportunities for active participation and input by Advisory Board Members in curriculum development, research activities, and student programs
- To focus efforts on key Departmental activities

Proposed Committees:

Executive and Strategic Planning Committee
- FIU Liaison - Anthony McGoron, BME Acting Department Chair
- Is comprised of representatives of large companies (51 or more employees), small companies (50 or less employees), and clinical program partners
- Oversees all activities of the Board
- Provides input to the Chair on strategic initiatives of the Department and other major decisions such as hiring, program development, etc.

Undergraduate Education and Accreditation Committee
- FIU Liaison – Anthony McGoron, BME Undergraduate Program Director
- Provides input to the Undergraduate Program Director on continuous improvement of the undergraduate program and preparation for accreditation renewal

Graduate Education and Research Committee
- FIU Liaison – Malek Adjouadi, BME Graduate Program Director
- Provides input to the Graduate Program Director on continuous improvement of the graduate programs and associated research activities

Resource Development Committee
- FIU Liaisons – Jon Sussman, College Associate Director of Research Programs, and Avy Weberman, College Director of Development
- Provides input to the Department on opportunities for increased funding via research partnerships and collaborations
- Helps to identify and secure new sources of philanthropic support to further the mission of the Department.

Proposed Meeting Schedule:

- Each Committee meets once per year in the Fall
- Entire Board meets once per year in the Spring

College of Engineering and Computing
and Biomedical Engineering
Strategic Research Priorities
2007-2008

College Goals
- To expand multi-disciplinary research activities across the departments and colleges while enhancing collaborations with other institutions and industry
- To significantly increase research funding
- To increase doctoral production
- To substantially increase scholarly activities and intellectual property
- To help in hiring faculty of higher quality and better potential as well as our faculty receiving greater recognitions in their professional community

Basis for selection of strategic priorities:
To select areas of greater potential for investment, e.g. faculty hiring, research infrastructure and space, based upon:
- Existing faculty expertise and research infrastructure
- Current and future trends of funding potential
- Potential for developing major grant proposals and centers
- Collaborations internally and externally
- Market for our graduates
- University priorities of Health/Medicine, Environment, International and Student Life/Affinity
- States focus/emphasis on development of hi-tech initiatives

Biomedical Engineering Strategic Priorities:
1. Medical and molecular imaging and biomedical optics (Includes instrumentation and biosignal processing)
   a. Traumatic Brain Injury
   b. Breast Cancer
   c. Brain Cancer
   d. Epilepsy
   e. Cardiovascular ischemia and hypertension
2. Biomechanics and biomaterials for tissue engineering, medical devices, and drug delivery
   a. Cardiovascular prostheses (heart valves, stents)
   b. Materials biocompatibility testing
   c. Orthopedics (mechanical devices and tissue regeneration)
   d. Micro and nano devices and drug delivery systems
3. Biomedical sensors and in vitro diagnostics
   a. Detection of biological exposure to environmental toxins
   b. Monitoring of biological response to toxins
   c. Detection of rare cells from blood samples and genetic variance
   d. Biosensors coupled to drug delivery systems

Potential Funding Sources and Collaborations
- Major funding available from external/government agencies such as the NIH, DOD, FLDOH, and NSF, local private industry.
Funding from philanthropic foundations.
Expand joint or sponsored professorships.
Collaborations within the University (College of Arts & Science and College of Medicine) as well as outside groups such as University of Miami and Florida Atlantic University, Mercy Hospital, Miami Children's Hospital, Baptist Hospital, Mount Sinai Medical Center

Requirements for moving to the next level
- Leadership needed – New Chair, additional senior level faculty
- Expansion of Faculty expertise in tissue engineering, biomaterials and mechanics/orthopedics
- More support for PhD students and post-docs (NIH training grant)
- Improvement on the Intellectual Property office
- Joint faculty positions and research programs with Miami Children’s Hospital, Mercy Hospital, and Baptist Hospital
- Expansion of infrastructure – significant expansion of the Animal Care Facility with resources for animal research in the Engineering Center.