

Baylor University
School of Engineering and Computer Science
Board of Advocates
Fall Meeting – October 5, 2007
Baylor University

Board members attending: Mark Cannata, Joe Cestari, Larry Johnson, Fred Logan, Lloyd Lund, Rick Maule, Bill Mearse, Jim McDonough, Craig Nickell, Clell Oravetz, Bill Ratfield, Ken Ross, Daryl Sims, Steve Smith, Dean Swisher, Trent Voigt, and Matt Watson

Board members absent: Shawn Sedate, Harold Spangler,

Others attending: Dean Ben Kelley, Don Gaitros, Bill Jordan, Rob Kennedy, Kwang Lee, Leigh Ann Marshall, Cheryl Tucker, and various faculty, staff, and students from the School of Engineering and Computer Science

Welcome

Following a continental breakfast, Bill Mearse convened the meeting. He introduced two new Board members, Fred Logan and Ken Ross. He also introduced Dean Terry Maness, Hankamer School of Business, whom Mr. Mearse has known since his Baylor student days in Dr. Maness' finance class. Dean Maness has been Dean of Hankamer School of Business since 1997.

Dean Maness welcomed the Board of Advocates and gave a brief overview of several premier programs within Hankamer School of Business. He mentioned the accounting, professional selling, and the distribution and logistics programs, the MBA-Healthcare, and the Business Ethics Forum. He also highlighted the partnerships between the School of Engineering and Computer Science and Hankamer School of Business. Those partnerships currently include global technology entrepreneurship and the joint MBA/ME degree. He concluded with a mention of the Baylor Business Network, a program that gives value back to Baylor alumni.

Following his comments, Dean Swisher commented that the Board will always encourage partnership between the two schools, and Dean Maness affirmed that goal. Bill Mearse also agreed, saying the Board supports these partnerships for students since ECS graduates work in the business world. Trent Voigt asked Dean Maness if business students also benefit from partnerships including engineering and computer science students, and the Dean enthusiastically answered, "Yes!" Finally, Daryl Sims asked about future partnerships between the computer science program and the Business School's information systems (ISY) program. Dean Maness responded that there hasn't yet developed such a partnership, and a champion is needed to push such a joint venture.

Dean's Report

Following Dean Maness' comments, Dean Kelley brought the Dean's Report. Dean Kelley outlined some personnel additions and changes; Strategic Initiatives; fundraising campaign; the Board of Advocate scholarship; current enrollment; new admissions directions; the Renaissance Scholar program; Nuclear engineering partnerships; ABET updates, and other newsworthy items.

Engaged Learning Groups

Drs. Ian Gravagne and Ken Van Treuren addressed the Board about the University Engaged Learning Group (ELG) they lead, "Energy and Society: The Costs and Benefits of an Energy-Dependent Civilization." In addition to describing the course, they gave a brief history of how Engaged Learning Groups were established. They described this semester's class of 27 students from Nursing, Business, Education, Pre-Law, Pre-Med, Engineering, Theatre, and Philosophy majors. They concluded by saying that, while the course is proving more difficult than anticipated, they believe that students were well on their way to having an understanding of issues and dilemmas relating to energy.

Joe Cestari asked how a student joined the ELG. Dr. Gravagne answered that they simply recruited students during summer orientation and selected students based on their test scores. Dean Swisher asked how the ELG success would be gauged. Dr. Gravagne answered that, since the ELG as part of the SACS reaccreditation goal addresses retention and academic success, the ELG will be measured against those goals. Rick Maule spoke about the ELG focus on energy and the idea to expose other disciplines to the issues related to power generation and conservation. He suggested guest speakers might enlighten the ELG as to how these issues affect other industries. Dr. Van Treuren responded that they would welcome opportunities for guest speakers. Several additional Board members echoed thoughts of how power generation and conservation affect their businesses and corporations.

I5 Program

Professor Cindy Fry and Dr. Greg Leman addressed the Board about the Baylor I5 Experience (Immersion Into International Interdisciplinary Innovation). This program is a partnership between Baylor University, Thunderbird University, and the University of Shanghai for Science and Technology. Teams of engineering/computer science, business, and Chinese students worked for 6 weeks during the summer 2007 on projects for Chinese and American companies in China. Professors Fry and Leman gave the Board members a brief history of the I5 program and an overview of the 2007 experience. They concluded with "lessons learned" and goals for 2008. Specifically, they will work to overcome (1) the language problems, (2) the number of relevant projects, and (3) time management and revised schedule. Following the presentation, two students who participated spoke to the Board about their experience. Luke Schmidt, a business graduate student, and Steven Mart, an engineering undergraduate student, went with the I5 group and worked with a company called USCN to develop a financial plan. Messrs Schmidt and Mart told about their particular project and shared their overall experience in China with the Board members. Mr. Mart said he was grateful for an opportunity to see how his engineering education

could fit into the real world, and he very much appreciated the opportunity to work with a real Chinese company. In summary, the presenters agreed

1. The outcome exceeded the expectations, and
2. Meaningful learning outcomes were achieved.

The Board had several questions and comments regarding this presentation.

- Steve Smith asked what was being manufactured in the plants the students toured. The students saw snowboard bindings, footwear, screws, and power strips being manufactured. They also mentioned being part of a contract negotiation when they visited one of the plants.
- Craig Nickell asked what Chinese cities they visited. The students listed three cities, in addition to Shanghai, where they visited.
- Dean Swisher asked about the biggest business surprise they encountered. Mr. Schmidt answered that he realized what a big “world force” China is and how much economic impact it has on the world. Mr. Mart noticed that the culture reinforced methodical behavior that made it difficult to be innovative and flexible.
- Daryl Sims asked whether the quality control issues that have been in recent news articles were prevalent in China. Both students did not hear similar news stories while in China.
- Bill Ratfield asked how the partnerships between Baylor, Thunderbird, and USST developed. Dr. Leman developed the relationship he had with a colleague at Thunderbird, and nurtured an existing longstanding relationship Baylor has had with USST.

Preparing ECS Students for Leadership

Mr. Adam Ecklund gave a brief presentation to the Board of Advocates on the leadership development seminar he leads. A one-hour course, the seminar may be substituted for Health, Human Performance, and Recreation (HHPR) credit by current students. Mr. Ecklund gave the history of the seminar, a brief course overview, the learning objectives, required texts, and list of assignments. Following his overview, Mr. Mayowa Mosuro, a junior engineering international student from Nigeria, shared his perspective of and experience with the seminar. He listed the advantages of taking the course, including (1) thinking about something other than the science and mathematics that dominates the rest of his course schedule, (2) getting to know the others in the seminar perhaps more closely than people in his other classes, and (3) learning to define his own values and form ideas about the world.

Student Lunch Presentation, “Engineering Missions”

During lunch with Board members and engineering and computer science faculty, Mr. Jonathan Crabtree, junior mechanical engineering student, and Mr. Joel White, senior mechanical engineering student, shared their experiences with engineering trips to Honduras and Armenia. Mr. Crabtree worked with a team to provide a micro-hydro power generator to a small village in Honduras. Mr. White worked on a team in Armenia on an affordable housing project. Both students outlined the projects they travelled to work on and showed photos of their respective projects.

Computer Science Departmental Session

The computer science faculty met with Larry Johnson, Rick Maule, Dean Swisher, Trent Voigt, and Matt Watson. Topics discussed included

- Introduction of Assessment of CSI Program Objectives and Graduate Outcomes
- Discussion with CSI/BINF students
- New Degree, BSECS, with Computer Science Fellows major
- [Gaming-Simulation Concentration under BSCS](#)
- [Software Engineering Concentration under BSCS](#)
- Completion of [ECS Board of Advocates survey](#)

Electrical and Computer Engineering Departmental Session

The electrical and computer engineering faculty met with Clell Oravetz (AT&T), Bill Ratfield National Instruments, Mark Cannata (Tellabs), Joe Cestari (ILS Technology), Ken Ross, Jim McDonough (HP)

ECE Faculty Present: Dr. Kwang Lee, Dr. Randall Jean, Dr. Jim Farison, Dr. Don Farris and Dr. Mike Thompson

1. Introduction of Faculty: Dr. Kwang Lee introduced the ECE faculty members who were present at the meeting to the board of advocate members.
2. Overview of the Department: Dr. Lee presented a summary of new developments in the ECE department. He reported that the Fall Premiere event was very successful. He also mentioned that we will be renaming the course-prefixes to reflect the new department structure within engineering. Dr. Lee also discussed the new web site and the efforts to make the departmental identity more distinctive on the updated web site.
3. Accreditation and Program Assessment: Dr. Jim Farison presented a summary of the result of last years accreditation visit. Dr. Mike Thompson presented an overview of our on-going assessment process. This included a review of our program objectives and outcomes and a brief description of two-cycle assessment of outcomes and objectives. A review of the FE-exam data used for assessing outcomes a, e and g was also conducted. Board members stated that they were pleased to see how well our students performed on both the AM and PM sessions of the exam. The problem area of “circuits” was noted and a brief discussion ensued about methods for improving in this area. The idea of moving the circuits and electronics courses closer together in the model curriculum was presented to the board. It was also mentioned that there are plans for allowing students to participate in PPI’s Exam Café. Members of the board pointed out that this plan would give us additional data for outcomes assessment, provide motivation for students to take the exam, and provide valuable practice time. The board was supportive in the use of the FE exam for outcome assessment.
4. ECE Internship Program: Dr. Randall Jean led a discussion about internship opportunities for students. Student successes from the summer of 2007 internship program were noted. Board members stated their support for increasing internship opportunities for

students. This prompted a discussion about industrial recruiting of Baylor engineering graduates. One board member mentioned that they were pleased with the quality of the applicants that they received at the Fall career fair, but that they would like to see a larger number of students attending the fair.

5. ECE Graduate Program: Dr. Mike Thompson presented an overview of the ECE graduate program. The Master of Science, Master of Engineering and Joint degree programs were described. He also described the level of student stipend and tuition funds and reviewed the enrollment and graduation statistics of the program.
6. Ph.D. Proposal: Dr. Steve Eisenbarth presented research funding and publication statistics that support our case for pursuing a Ph.D. degree program in Electrical and Computer Engineering. While the time to discuss these plans was short, the board seemed very receptive to our pursuing a Ph.D. degree program.

Mechanical Engineering Departmental Session

1. Members of the ECS Board of Advocates interested in the Mechanical Engineering program met with the Department faculty to discuss current issues. Board members in attendance were Lloyd Lund, Daryl Sims, Bill Mearse, Craig Nickoll, Steve Smith, and Fred Logan. Faculty members in attendance were Bill Jordan, Carolyn Skurla, Ken Van Treuren, Steve McClain, and Dick Campbell who was the Recorder.

2. Bill Jordan led the meeting with a list of discussion topics (attached). The following specific comments refer to this list:

- Accreditation Issues – The ABET report comment regarding the limited Thermo-Fluids capability was reviewed.
- PH.D. Proposal – Mr. Smith asked about the number of ME graduate students (currently 8). This proposal is important to provide better research continuity and funding (Masters' students are not here long enough to complete extended research).
- New faculty member Dr. Steve McClain was introduced, and was noted that he is adding thermo-fluids support.
- Junior and Senior Design – The teaching load demand may provide only one instructor vice two. The types of projects may need to be changed to accommodate both increased student load and faculty availability. We may change the model to use smaller groups, more variety. No decision has been made yet.
- The pilot courses in economics, technical communications, and entrepreneurship are being revised in the curriculum on a trial basis. More assessment is needed, and some courses will increase teaching load. This would cause a workload transition spike which we might not be able to handle.
- Big 12 Nuclear Consortium: While still in the planning stages, we would accept a course as a technical elective, but we currently have no intention of creating a new major or diluting the on-campus experience. This initiative will provide the potential for more collaboration and sharing with Big 12 schools. The board agreed that this was generally a good thing.

3. Other discussion:

- ME Class sizes. ME is now the largest (student enrollment) program in the School. Faculty resources and lab spaces are being taxed. We project a future shortfall in teaching capacity and section coverage. We have been approved for a new faculty hire to replace Tommie Thompson who has announced his retirement. Bill Jordan asked the Board to recommend candidates from their industry for adjunct faculty positions. Part-time adjuncts may help in the short term.
- Mr. Sims inquired about our 5 year vision. We can accommodate growth but we must balance research with teaching. Retention has improved, and because of the student teaching load, ME is not doing as much research as they otherwise could be doing. We don't want to restrict enrollment but we may be forced to address enrollment management in some form.
- Mr. Sims also noted that enrollments at Baylor were down. This is not a reflection of the attractiveness of Baylor, but as a result of the new admission policies. Baylor's application process and acceptance rate has actually increased competition and resulted in higher quality students.
- Mr. Nickoll suggested that we place more emphasis and advertising on our mission trips; promote them more to the community. These programs are very appropriate for Baylor and tell what our students are doing. He suggested we have a promotional video. Dick Campbell will meet with him separately about this.
- Mr. Mearse was curious why ME was currently so popular. While there is no definitive answer, there was a general discussion of the current industry, job opportunities for engineers, and the changing energy and nuclear industries.

4. Bill Jordan thanked the board members for their participation and continued support.

Board Closed Session

The Board of Advocates met in closed session from 3:15-4:15 pm.

Closing Session

Mr. Mearse began the final meeting session by recapping the day. He was appreciative of the "very impressive program, including the student speakers" heard earlier in the day. He noted that items and issues raised in previous Board meetings are finally being developed and included in ECS programs. He complimented ECS on the partnerships with the Business School, and noted that the partnerships should be beneficial for both academic units. He expressed the desire that these partnerships be promoted by the Business School with equal rigor as they are in ECS. He also requested that the joint MBA/ME degree be promoted.

As ECS challenges, Mr. Mearse listed the following:

- Critical mass
- Fundraising
- The lack of a large legacy

He offered that the Board meet with Vice President for University Development, Dennis Prescott, in order to communicate the desire to “be aggressive for” the ECS fair portion of the upcoming comprehensive campaign and additional research funding. Mr. Mearse said ECS is close to reaching “the tipping point” and the need for moving forward with a sense of urgency.

He concluded these remarks by suggesting that ECS graduate students be more heavily recruited from outside Baylor University. Using the School’s website as a recruitment tool will help.

Trent Voigt voiced his concern that ECS students’ application package experience is not comprehensive. Students need a broader familiarity with various application packages so they arrive in the workplace with some level of experience. Rick Maule agreed and added that as industry progresses, students should now add some knowledge of “multi-socket, multi-core, and multi-thread” applications and be conversant about software.

Dean Kelley called for volunteers to give summaries of the departmental breakout sessions. Dr. Jordan reviewed the mechanical engineering session. He listed the topics discussed:

- Accreditation review
- Strategic initiatives
- Introduction of new faculty
- Additional faculty search
- Mission trips
- Curriculum revisions
- The Big 12 Nuclear Consortium and its implications for curriculum
- Enrollment issues: too many students vs. too few faculty

Dean Swisher summarized the computer science session. He listed the topics discussed:

- ABET survey
- Discussion with current undergraduate and graduate students
- Overview of the Computer Science Fellows program
- The Gaming and Software Engineering concentrations

He relayed positive comments from the student panel, saying the students reported good faculty interaction, although the students are concerned about “competing resources” and a desire for “security courses.” He echoed earlier comments about the students being non-conversant about software packages. He said that the gaming program needs sponsorship. Rick Maule added that the gaming industry is “like a club,” and Baylor’s program needs to “break into the club.” He suggested that Dr. Sturgill return to BioWare, where he worked in the summer, 2007, with student interns.

Dr. Kwang Lee summarized the electrical and computer engineering session. He reported on the new course numbering to separate mechanical engineering courses and electrical and computer engineering courses. He said the ECS website will further reflect the separate departments that are working to establish separate identities. He also listed the ABET report, missions projects, the internship program and how to make it more visible to students and companies. He suggested that a tuition subsidy for a summer internship might be a way to enhance a successful in-

ternship. Finally he listed the university's funding of current graduate programs and that the department will pursue a Ph.D. program.

The Board briefly discussed the School's internship program. Dean Kelley said that, currently, academic credit is optional for internships, and it remains difficult to document non-credit summer internships. Rick Maule challenged ECS to raise the internship expectation. Jim McDonough relayed his company's experience with rotating internships (co-ops). Dr. Gaitros interjected the statistic that only 4 percent of computer science graduates do not have employment or graduate school plans upon graduation. Dean Kelley agreed that better data on internships is needed. He reported that ECS is working to adjust the internship program with a current proposal to shift internship responsibilities from a faculty member to a staff member.

Dean Kelley thanked the Board for their feedback, although some of it might take time to address. He acknowledged the distance to ultimate success.

The Board agreed on the Spring meeting date: April 25, 2008 (at Baylor University). The meeting concluded at 4:45 pm