

Baylor University
School of Engineering and Computer Science
Board of Advocates
Fall Meeting – October 4, 2013
Baylor University

Board members attending: Jay Battershell, Mark Cannata, Beth Casteel, Brad Crawford, Joe Cestari, Chip Fichtner, Romelia Flores, Tom Gilman, Douglas McBride, Mark McCollum, Don McErlean, Bill Mearse, Don Roberts, Shawn Sedate, Emile Sevadjan, Steve Smith, Andy Spencer, Greg St. Denis, Dean Swisher, Rick Tullis Trent Voigt, and Jim Wiethorn

Board members absent: Fred Logan, Hector Martinez, Craig Nickell, Harold Rafuse,

Welcome

Bill Mearse convened the meeting and welcomed the Board to the Fall meeting. He remembered Harold Spangler, who passed away in August. Bill said he had an opportunity to visit with Miriam, and he encouraged the Board to think about sending a collective note to her. Bill also announced his retirement from Accenture coming up in November. In closing, he remarked on the “exciting times at Baylor,” with the undefeated football team, and he commented that Baylor was picked to win tomorrow’s conference opening game versus West Virginia. Finally, he directed the Board’s attention to the Dean’s report.

Dean’s Report

Dean O’Neal welcomed the Board members and briefly outlined the format of the morning’s meeting. He introduced four new board members, Tom Gilman, Douglas McBride, Don Roberts, and Emile Sevadjan. He thanked the board members who participated in the freshman engineering course speakers panel earlier in the semester. He told of a few milestones since the Board spring meeting, including the first graduate of the Ph.D. program, the completed Teal Residential College (where the day’s meetings were being held), and the first corporate endowed scholarship (given by L-3 Communications).

Dean O’Neal gave a report about the reaccreditation of the engineering programs and announced that another accreditation visit will happen for the computer science and bioinformatics programs next fall. He talked about the enrollment trends for freshmen and transfers. He also reported that two faculty were tenured and promoted, two faculty earned their doctorates, the ICPC saw another successful competition in the spring, the largest STEM Career Fair was held a few weeks ago, and ECS faculty visited Sandia National Laboratories. Four ECS faculty left Baylor, and four additional faculty joined Baylor in addition to hiring the clinical professor, Mr. Larry Snyder, to work within the Kern Entrepreneurship Education Network (KEEN) grant

Regarding the future, Dean O'Neal said that the rapid enrollment growth continues to be the largest challenge facing the School. To face the challenges, the plan is to grow the faculty and staff, manage enrollment, and continue to look for space to accommodate expanding programs. Further, ECS Ph.D. programs will be expanding. Following the Dean's report, the Board broke into two groups.

I. Undergraduate Programs Breakout

Dr. Ben Kelley opened the session. He reported that ECS "has reached critical mass, which has advantages and problems." The School is looking at departmental enrollment goals.

Dr. Bill Booth (for computer science {CS})

--He discussed the data he has collected for a study reaching 10 years ago to the present.

--Currently, CS has 600 majors and they retain approximately 1/2 of the students.

--The retention study revealed that CS student success is not due to SAT/ACT scores, zip code, or high school rank. The best predictors of CS success lay in the grade in Calculus I and the 2 intro Computer Science classes.

--Almost always, if a student fails one of the intro courses, they will not succeed in CS.

--Therefore, CS developed the "B or better" rule in the 2 intro courses to be able to proceed through the major.

--Some problems they have identified that decrease retention include not being financially or academically prepared for college.

--Raising the SAT requirement is not the only answer to the retention problem. Maturity of the student is a crucial factor to academic success.

Mr. Pat Lea (for mechanical engineering {ME})

Dr. Carolyn Skurla has done a study for all Engineering students with regard to identify predictors for success in Engineering. Risk factors include:

1. SAT score – needs to be 1100 or better
2. Grade in any 1st year math course needs to be a C or better
3. Grade in the 1st Engineering course needs to be a B or better

Therefore, Engineering has developed the "B or better Ruling" and has created the "Pre-Engineering" major. Next fall, they will implement a minimum SAT score of 1110 to be able to enter the Pre-Engineering major.

Mr. Lea continued:

--Engineering realizes they will lose approximately 50% of their freshmen students with the B or better rule. The pre-engineering program will allow identification of unsuccessful students in the first year instead of the second year of classes.

--Engineering is trying a new focus for next fall: to prepare freshmen better as to what Engineering really entails. They are seeking to develop new attitudes and new behaviors in the freshmen.

--Mr. Lea said that some new freshmen with strong STEM programs in high schools tend to do well in Engineering. Those who have had no STEM exposure are those that tend to flounder.

The Board members offered the following feedback:

Mr. Trent Voigt described the experience of his daughter attending Georgia Tech's summer program for high school students. Although his daughter did very well in the summer program and won several awards, the experience was great because she determined that she did NOT want to be an Engineer. He stated it was the best money he has spent in her college venture. He can see how this would be a great tool to reinforce the Engineering track or weeding out students that can see exactly what Engineering really is.

Another board member asked about how ECS handles aptitude testing? He said this helped him determine his academic path when he attended college.

Mr. Steve Smith mentioned that SMU students are required to set 4-year success plans when they enter as freshmen.

Mr. John Miller: Changes in the Freshman Engineering Course

[Changes to Freshmen Engineering Courses presentation](#)

Mr. Miller discussed proposed changes to the Freshmen Introduction Class EGR 1301. They would make changes to get more problem-solving of "hands on" projects and show resources available to students. There are 320 students in the EGR 1301 classes. He said the challenge is to keep the intro class easy enough for some and yet challenging enough for higher achieving students. He said the main focus of this class change it to improve EGR current students. He described the class change as splitting the current EGR 1301 class into 2 classes—1101 and 1201. They would still equal the 3 class hours of the 1301 class and they would both be taken the first freshman semester, just like 1301.

The 1101 class would be similar to the current 1095 class that students take now during the first 6 weeks of the 1st fall semester. This class would examine issues ranging from adapting to college life to defining Engineering and what it really entails. This one hour credit course would accomplish: (1) building community among students (2) strengthening students' commitment to getting a degree (3) identifying and changing negative attitudes (4) identifying and changing negative behaviors. Hopefully, this would help students determine if they are in the right major for them while also helping our retention numbers. The 1201 class would be similar to the 1301 information and projects currently being taught in the 1301 classes.

Mr. Miller further said that thoughts of having this class taught in the summers would also help students decide earlier if they are in the correct majors and then they could make necessary changes in the fall if they decided that Engineering is not the correct path for them.

The Board members offered the following feedback:

Mr. Shawn Sedate applauded the idea of the new class split. He likes the idea of a tool to help "weed out" students not in the right major.

Mr. Chip Fichtner said he determines his baseball coaching on a similar theology. He has to determine which players can play 1st base and which should be in the outfield. Some determine they don't even like baseball and make great soccer players.

Mr. Doug McBride mentioned that any plan needs to have good, passionate, interesting professors to teach the intro classes. A "bad" professor can make students change majors.

Mr. Steve Smith agreed that good retention key is to have good professors in the intro courses

Mr. Sedate added that students also need personalization. He asked what makes a unique ECS student? What is ECS doing to help personalize a student's degree path?

Mr. McBride mentioned his good success with his company and co-op situations. He asked about ECS co-op and was told that presently we do not offer co-op. He talked about his great connection with the co-op students and his company from UT.

Mr. Emile Sevadjan agreed with Mr. McBride. His company co-ops with A&M and they have had great success.

Mr. Sedate agreed with the one week, 40 hours session to let a student know what Engineering is all about. He said that Adam Edklund could counsel those who could not make up their minds or could not do the work. He liked the ideas of competitions within this event.

Mr. Fichtner liked the idea of making the camp or 40 hour session mandatory in the summer before the fall freshman year.

Mr. Voigt liked the idea of making this week much like they manage line camps.

Mr. John Miller thanked all the discussion from the board. He mentioned that the idea of camps is a great one and that costs may be an issue in this type of activity.

Dr. Ben Kelley mentioned that there might be a problem with lodging of this type of activity.

Mr. Sedate said he was for any type of activity that sped up the process toward a student finding a successful path.

Mr. Miller summarized the session by saying that the course split is more than just a 'weed out' tool. They want students to have skills and information to be successful – whatever their academic path. They want to design the split courses to help students further mature and be able to commit to the Engineering majors.

[General Engineering presentation](#)

II. Corporate Relations and Development Breakout

The following list was compiled from a brainstorming session of the group of Board members and guests, Mr. Rob Kennedy (University Development Corporate Relations) and Ms. Carolyn Muska, (Office of Career and Professional Development).

Problem Statement

- Help Baylor ECS get to Tier I
- Raise Endowment
- Increase Employment Opportunities

Determine Stakeholders

- Baylor Students
- Baylor Alumni
- ECS Alumni
- Corp, Employers
- Baylor administration

Corporate Development

- Have companies interview Baylor students
- Company proposal development
- BRIC – Reach out to companies about this
- Expand Career Fair across Baylor attendees
- Highlight ECS graduate qualities to employers – Leadership/Communication skills
- Capture 3 minute videos of Senior projects
- Community Service Projects
- Education for employers during Career Fairs – videos, brochures, books
- Examine growth model for Career Services
- Supply elevator pitch for Board members
- Publicize SWE, IEEE, ACM, etc.
- Cultivate Corporate Relationships
- Baylor newsletters pushed to corporate links

Reconnect with Alumni

- Social Media
- ECS LinkedIn and Facebook pages
- ECS Tweeting, Pinterest
- Cascaded Data Search
- Synergy “Video” – YouTube – 3 minutes
- Affinity Groups
- Faculty – IEEE, ACM, etc. cascading
- VistageLink
- Comparison stats to trigger action
- ECS Alumni highlights collection
- ECS Internship highlights collections
- ECS recent grad early career wins
- Need to determine what is “meaningful” to the alumni & donors
- Strengthen leverage of existing communication vehicles
- Baylor “Technology” Network
- Examine Baylor Business Network
- Baylor Church Network
- Examine augment resources focused on ECS development/funding/etc.
- Active Baylor Mentoring” program
- Speaker’s Bureau
- Expand ECS pool to other Baylor alumni (business, social, etc.)
- Baja “short” video at football, BB events, etc.
- ECS “Proud” – contribute to Baylor Proud
- ECS video clip library – Link library
- Shorten BRIC video

Board Reconvened

At 11:15 am, the Board reconvened, and Dean O'Neal offered a recap of corporate session. He relayed the suggestion of constituent engagement via a common link, called "Baylor Technology Network." The ECS Development and Corporate Relations team will need to figure out how to distill and prioritize the ideas, given the limited bandwidth

Mr. Trent Voigt suggested connecting with current alumni to find missing alumni. Mr. Don McErlean agreed and suggested a "cascading info" method of finding missing alumni.

Mr. Tom Gilman suggested that Board members could influence the list of companies not recruiting at BU.

The Board collectively suggested crafting an "elevator speech" containing elements for Board members who are at professional meetings and with other contacts.

At 11:30 am, Mr. Dean Swisher reported on the undergraduate breakout session. He said that discussion centered on how to engage students early in order to make them successful in the discipline. Currently, only 50% of students retain in ECS programs.

Mr. Swisher reported that Dr. Bill Booth discussed retention and "B or Better rule" and higher SAT threshold. He also said that Mr. Pat Lea discussed studies determining early intervention and whether major is a good fit. He said that building a feedback loop around student readiness and predictors for success is a priority. He asked the rhetorical question, "Where is a lifeline for students who figure out they don't want to be in the major?" Currently, 92% students who leave ECS stay at Baylor, but in other programs.

Mr. Swisher described the breakout discussion about new engineering courses, 1101 and 1201 for problem solving skills. He agreed on the value of having abbreviated freshman seminar and value of understanding what it takes to persist in major. Many resources are currently being lost on students who don't succeed.

Mr. Steve Smith recalled Mr. Pat Lea's mention of Dr. Carolyn Skurla's retention study and the success indicators: SAT=1100, a "C" or better in the first math course, and a "B" or better in the first engineering class. Success in two of the three improves retention by 50%.

Mr. Swisher wondered how Teal Residential College predicts success. Dean O'Neal responded that ECS is looking at grouping ECS students together in other dorms in affinity groups and providing special programming for ECS students.

Mr. Swisher suggested that ECS build better relationships with other units, like the Business School, where students deflect to.

Mr. Rick Tullis suggested that the amount of engineering courses in high school is a future success factor that might need to be tracked.

Mr. Mark Cannata applauded the idea of adjusting student expectations within current curriculum.

Dean O'Neal summarized by saying that, in reality, ECS is accepting students who aren't good fit. Mr. McErlean suggested that finding out what engineers do is a good way to provide career readiness.

Dean O'Neal asked the board for feedback on breakout format? There were no suggestions for improvement or change.

Mr. Shawn Sedate observed that the Board was offering lots of ideas that involved many operational challenges. He asked whether the Board "is doing a disservice?" He asked, "What's a practical way to move forward?" He offered that the Board volunteers to help with implementing ideas. Dean O'Neal agreed, reminding the Board that they were most recently involved in the freshmen engineering speakers panel, which was an enormous help and "made a big impact."

After lunch in the East Village Dining Commons, the Board divided into three breakout sessions:

1. [Computer Science Departmental Break Out Presentation](#)

Notes from Computer Science Break Out Session

- I. Possible ABET Accreditation for BSI
 - a. Accreditation will take place in parallel with the accreditation of the BSCS degree during 2014.
 - b. The board consented with small changes in the CS mission statement to include specific information about the requirement for life science and/or biology skill sets. This new mission statement would serve as the foundation of the BSI mission statement for accreditation.
 - c. It was pointed out that since there are very few ABET accredited BINF-specific programs (while there are several in informatics), we should only pursue this option if the outlay in time and cost is sufficiently small to warrant the incremental benefit the department might receive from accreditation.
- II. The CS Ph.D. Proposal
 - a. The board was informed at a high level about the recent submission of a full Ph.D. proposal for the department.
 - b. There was a consensus that in industry, doctorate level employees are often relegated to research-specific roles. While they are often viewed as extremely competent, that competency is translated into a rather narrow focus. Ph.D. research types are very often not 'big thinkers' that can see the large picture of business.
 - i. Must know the technology and what will 'sell' to be successful in industry.
 - c. In order to better prepare our potential Ph.D. candidates, the board encourages a deeper and more intentional development of communication skills. Success for these roles in industry would be enhanced if our graduates would be able to 'talk to the client' without the depth on complexity used to talk to peers.
 - i. Includes enhanced broad public writing skills
 - ii. Perhaps tighter integration with business school

- d. The board commented that there were very few opportunities for industry to directly fund or sponsor graduate stipends; there is no guarantee for return on investment.

2. Electrical and Computer Engineering Departmental Break Out Presentation

Notes from Electrical Engineering Breakout Session

- Two new faculty positions openings, additional in PHD program
- Trend for students to move to ME instead of EE, would like 50/50 ratio
- Robotic competition at Baylor in Spring 2013 in conjunction with 4H
- Renaissance week now called Innovate for potential engineering students
- ABET Accreditation done in 2013 next in 2019
- Engr students tutor 5th graders two days a week
- Engineers with a Mission, Solar array in Haiti, emphasis on lockdown for array
- “Transferring Experience” Part of Baylor’s Pro Futuris
- Engineers with a Mission – Baylor Student Organization of the Year
- Brian Thomas – Student Organization Advisor of the Year
- Graduate Program – looking for funding for research assistants
- BRIC - 14 Labs and 14 Offices
 - Burgers at the BRIC was a success
- IEEE Wireless and Microwave Conference – success in 2013
- Future for ECE
 - Advisory Board
 - Faculty Search
 - Recruiting Grad Students
 - Recruiting Undergrad Students
 - Increase retention rate

3. Mechanical Engineering Departmental Break Out Presentation

Following the departmental breakout sessions and the Board Closed Session, the Board offered several comments to Dean O'Neal. Mr. Bill Mearse said the Board is "encouraged by relationship the Office of Career and Professional Development and changing the expectations of students." The Board encourages ECS to engage more companies.

Mr. Mearse continued by saying that the internal and external metrics and comparisons with other institutions are helpful. The increased engagement and involvement with the Board is very positive. Leveraging board members is good; glad they're being used & want to be more involved. Want more exposure to faculty & facilities.

The Board applauded the outcome of the accreditation, especially after the "scary" accreditation assessment. After much hard work, the lessons learned enabled a "dry run" for the upcoming computer science/Informatics accreditation visit.

Mr. Mearse listed the following areas for additional focus:

1. Importance of new Ph.D. programs.
2. Growth of student population. Having 1088 students is "critical mass," but need to get closer to research critical mass. Mr. Mearse encouraged ECS to ask for help from Board when selling to BU administration.
3. Transition of development focus. The Board offered good feedback from Kristen's responsiveness. The morning session needed more focus. Although the group determined the problem statement, there was not much focus on stakeholders and how to tailor message for those stakeholders. The Board offered to go on visits and otherwise help. Raising funds takes all channels, and the Board agrees with the need for it.
4. ECS Vision. Do we have an ECS vision? Where are we headed? "Where is the end in mind & how do we get there?"
5. Board meeting focus. Undergraduate discussion did not cover the full list of topics. There ought to be a facilitator to keep the discussion on track.
6. Career Services. The Board is glad relationship is getting there. Traditionally, the career services function at Baylor has been more tactically focused and always needed a more strategic focus. Having more strategic thinking is beneficial.
7. Diversity within the Board of Advocates. Dean O'Neal asked the Board for introductions to people who would be good Board candidates. He also relayed plans for departmental boards.

Other Board members offered additional comments:

Mr. Andy Spencer asked for clarification on the School and its departmental board groups. Dean O'Neal answered that having separate boards "will help build the network more broadly" and "get more boots on the ground." He said that people often have affinity for departments from which they graduated. Finally, department boards will enable departments to focus more specifically on issues.

Mr. Dean Swisher agreed about the importance of finding ways to work together and exchange ideas across disciplines in the School of Engineering & Computer Science

As the meeting drew to a close, Dean O'Neal called the Board members attention to their meeting packets. He reminded the Board that the Baylor SAE-BAJA team is beginning to recruit and fund-raise.

Additionally, as member companies think about the next fiscal year, proposals such as for scholarship money might be worthwhile. Dean O'Neal will be glad to write a proposal to a company that has hired some ECS graduates who are doing well in that company.

Finally, Dean O'Neal thanked the Board and their commitment to Baylor and ECS. He conveyed how meaningful it is to have the Board's day-long participation.

The last item of business was that the Board agreed on the next meeting date: April 11, 2014.