Industrial Advisory Board (IAB) Meeting Minutes

Friday, November 3, 2017
Colorado State University Stadium


ECE department: Anura Jayasumana, Rachael Johnson, Andrea Leland, Sudeep Pasricha, Melissa Reese, HJ Siegel, Katya Stewart-Sweeney, Karen Ungerer, Jesse Wilson.

1. Introduction and Welcome IAB Guests (Art Lizotte, IAB president)
   Art Lizotte opened the meeting, welcomed the new IAB guests (outlined above), shared the day's agenda, and then turned it over to Tony Maciejewski, ECE department head, for the department update. In Art’s role as Director of Americas University Development for Keysight, he works closely with universities across the country and serves on a number of advisory boards. He noted that ours is one of the best in the country.

2. Agenda and Department Update (ECE Department Head Tony Maciejewski)
   Tony welcomed the meeting attendees and delivered an update on the department, touching on the following topics. He started by showing the board a recent piece about the Engineer in Residence program that was featured on Denver CBS4.
   • 10 years of service to the IAB: Jason Gentry
   • ECE faculty are leaders in the field
     o 27 faculty – More than 40% hold IEEE Fellow distinction
     o ECE is a Top Five technology producing department at CSU
   • Four ECE professors are Distinguished faculty at CSU
     o University Distinguished Professors: Menoni, Rocca, Chandra; University Distinguished Teaching Scholar: Notaros
   • ECE is home to three CSU Distinguished Administrative Professionals
     o Katya Stewart-Sweeney, Melissa Reese, Andrea Leland
   • The department’s latest fellow awards
     o Carmen Menoni, AAAS; Branislav Notaros, ACES
   • Recent publicity
     o ECE’s work with Nobel-Winning LIGO Team on 9News, led by Menoni
     o 9News featured Sid’s research to make power grid stronger
     o HPE CEO praised CSU Engineering
     o Engineer in Residence featured on CBS4
   • Winner of 2017 Best Paper Contest: Ram the Snow Cam
   • Charts and data
     o College of Engineering research expenditures
     o ECE research expenditures
     o ECE direct and indirect costs
• Proposal Activity
  • ECE student credit hours
  • College of Engineering credit hours
  • National enrollments by discipline
  • CSU engineering enrollments
  • Biomedical dual majors
  • ECE fall enrollment
  • Freshman enrollment
  • ECE freshmen enrollment Colorado institutions
  • National persistence in engineering
  • ECE freshman retention rates
  • Women in Engineering (2016)
  • Women in ECE at CSU
  • Nontraditional undergrads in ECE
  • First-generation undergrads in ECE
  • International students in ECE at CSU
  • Undergraduate degrees awarded
  • Graduate degrees awarded
  • Percent of international degrees awarded
• Career outlook for ECE majors
  • Among top 10 majors in demand for B.S., M.S., and Ph.D. degrees
  • Hottest employment field in 2017
  • Average starting salaries
    ▪ Electrical engineering - $75,000
    ▪ College average - $58,441
    ▪ CSU average - $47,948
• Early results of NSF RED Project
  • Anecdotally, LSMs and KIs well received
  • Number of students receiving Ds, Fs, or withdrawals in technical core has been cut in half (FA16 vs FA15)
  • Engineer in Residence a success
  • Increases interest in student projects throughout curriculum
  • Departmental Action Teams project gaining momentum
• Virtual internships launched in FA17
  • Partnership with University of Wisconsin-Madison enhances professional formation and creativity threads
  • NSF-funded virtual internships simulate engineering workplace through design projects

Update on spring action items:
  • **Action item:** Ask incoming teams to document current status of multiyear projects and goals for expanding the project.
  • **Status:** Olivera now requires teams to submit a document that outlines the previous team’s accomplishments and goals for the coming year.
  • **Action item:** Multiyear projects should be clearly delineated to external audiences; current team’s contributions should be evident.
  • **Status:** Students are being asked to include this in external communications, e.g., presentations and E-Days posters.
  • **Action item:** For mega projects, ensure all students are being challenged and afforded the opportunity to be creative.
• **Status**: Team roles are carefully outlined; students participate in self- and peer-evaluations that hold them accountable as team members.

• **Action item**: Knowledge transfer should be a component of every project; customer and project requirements should be documented.

• **Status**: Already a requirement of senior design course.

• **Action item**: Provide a list to the IAB of potential senior design projects to sponsor, mentor, or serve as a customer.

• **Status**: A list of projects will be distributed each year.

**Follow-up items from Tony’s presentation:**

- Board would like to see mechanical engineering persistence
- IAB wonders if there are recruitment and retention strategies we can draw on from other cultures to increase the percentage of women in engineering
- Investigate and share first generation and nontraditional stats from other schools, if available

3. **Lunch and Student Project Presentation (CSU Brewery Project Team)**

The senior design brewery team presented its project to the board. The team is working in partnership with fellow students in mechanical engineering and chemical and biological engineering to assist in the design of a custom brewery system that will reside on campus.

4. **Faculty Spotlight (Jesse Wilson, ECE Assistant Professor)**

Prof. Wilson delivered an interesting presentation about his current research, including examples of his work to improve early detection of melanoma, as well as his cross-disciplinary research to advance the study of metabolism.

5. **Prep for Branding (Tony Maciejewski)**

In preparation for the breakout discussion, Tony provided an overview of a nationwide branding initiative led by ECEDHA, the ECE Department Heads association, with the goal to “make ECE cool again.” He shared the background, research, deliverables, and timeline for the project. He also previewed messaging platforms that are currently being vetted by the branding committee. Andrea Leland is a representative on the committee.

6. **Breakout Session: Reenvisioning ECE: Branding at the National and Local Levels**

Jeannine and Art asked the board to break into groups and consider the following questions:

- What are your thoughts on the message directions and creative concepts? Which is your favorite, and why?
- In your opinion, what makes ECE at CSU unique?
- What is your elevator pitch when asked about the ECE department at CSU?
- How can you help change the conversation and create more accurate and positive perceptions about ECE at CSU?

**Key Points and Suggestions from Breakout Discussions:**

**Feedback on message directions and creative concepts:**

- Building on “Powering Possibility,” add a personal touch by layering professor-student connections.
- Many board members agreed that they would like to combine different aspects of each messaging platform, particularly the ones that show the emotional appeal while highlighting the innovative nature of the discipline.
- Messaging considerations:
The field of electrical and computer engineering is highly creative; you can change the world with an ECE degree.

Human impact in messaging is critical, e.g., biomedical applications.

One criticism: Many of the messaging platforms were “boys with toys” which does not appeal to girls or women.

Some people noted that cell phones are an outdated illustration of innovation; we need to show examples of the next big thing.

Tie ECE to 3D printing, as people tend to associate the technology with mechanical engineering.

- One board member suggested that 15 second videos are the new elevator pitch – we must be able to communicate the message in 15 seconds.

Opinions about what makes CSU unique:

- Perceived strengths:
  - Fort Collins is a highly desirable location, and a hub for innovation (e.g., the Innosphere)
  - Innovative academic environment (e.g., RED project, impressive research)
  - Excellent faculty
  - Strong industry connections
  - Engineer in Residence program
  - Faculty-student ratio (personal attention)

- Great people, great place, great results

- One board member provided the following description of the ECE program at CSU:
  “ECE’s are enabling the next amazing technologies that will change the world. At CSU we recognize that great things are done in teams and that learning is best accomplished with hands-on experiences. We give our students real-world problems to work on and put them on interdisciplinary teams to ensure they will be successful when they enter industry.”

7. Closing Remarks (Tony Maciejewski)

Tony wrapped up the meeting and thanked the board for their participation. He encouraged the board to contact him or Andrea with additional ideas or comments regarding the meeting topics. Immediately following the meeting, the board participated in a casual mixer at the stadium.

ACTION ITEMS:
- Share mechanical engineering persistence with the board.
- Explore recruitment and retention strategies from other cultures to gain insights into increasing the percentage of women in ECE.
- Investigate and share first-generation and nontraditional stats from other schools (particularly other CO schools), if available.
- Share update on ECEDHA branding project.

The spring IAB meeting is scheduled for Thursday, April 12, 2018.