IAB members present:
Chuck Duey, Scott Evans, Jason Gentry, Jim Greener, Bob Gresham, Bob Heesemann, Dana Kirchmar, Michael Kotson, Alvin Loke, Scott Lukes, Scott Makinen, Paul Monson, John Nichols, Orhan Norman, Chuck Quire, Duane Spence, Kamran Shahroudi, Fernando Tomasel.

ECE faculty and staff present:
Edwin Chong, Anura Jayasumana, Tony Maciejewski, Branislav Notaros, Olivera Notaros, Sid Suryanarayanan, HJ Siegel, Karen Ungerer, Peter Young.

Guests:
A group of ECE undergraduate and graduate students.

1. Introduction and Welcome (Jim Greener, IAB president)

2. Department Update (ECE Department Head Tony Maciejewski)
   Tony’s department update addressed the following topics:
   - Faculty News
   - Student News
   - Online Degree
   - Engineering Building Update
   
   Graphs and charts
   - COE trends in research expenditures
   - Distribution of College of Engineering research expenditures
   - Trends in ECE research expenditures
   - National engineering enrollment trends
   - ECE spring enrollment
   - Undergraduate degrees awarded
   - Enrollment trends by class
   - Freshmen enrollment trends
   - Admissions outlook
   - Graduate degrees awarded
   - Percentage of international degrees awarded

3. Update on Fall Action Items
   At each meeting Tony gives progress updates on notable suggestions from previous board meetings. He reported on the following action items from the FA10 meeting.
   - Action item: Report back on the grad placement rate for mechanical engineering.
   - Status: 2011 placement rates for College of Engineering:
- **Action item**: Follow-up on discussions with Math Department on ideas to improve learning in courses for engineering students.
- **Status**: First math course specifically for ECE students (Math 161) under way this semester.
- **Action item**: Share details of online ME in ECE degree program. Ask for help with marketing, company visits, etc.
- **Status**: Shared details earlier. Contact Carl Melle for more info: (970)391-1992.
- **Action item**: Determine ways to spark interest in electrical and computer engineering early in the undergraduate program, possibly by adding a new freshman course.
- **Status**: Dr. Notaros will provide an update on important curriculum changes later today.
- **Action item**: Work with the College of Engineering to see if they will accept field trips as PLI credit.
- **Status**: Memo submitted to College Curriculum Committee in February. Thanks for your support. We’ll keep you posted.
- **Action item**: Modernize teaching methods by using current techniques such as blogs, podcasts, Google, Facebook, Twitter, Youtube, etc.
- **Status**: Taking advantage of online learning tools through CSU OnlinePlus. Some faculty are incorporating social media, blogs, etc.
- **Action item**: Work on K-12 outreach strategies to help engineering students enter the university better prepared, possibly in partnership with industry or IEEE.
- **Status**: Karen Ungerer has been working with industry and schools to promote engineering in K-12. She has been visiting local high schools and elementary schools, as well as recruitment events geared toward this audience. Members of HKN have helped with these efforts.

4. **Curriculum Update**: Professor Branislav Notaros, Chair of Undergraduate Curriculum Committee

5. **Breakout Session**: Identifying Technical Electives for Specific Industry Sectors

**Breakout Results:**

**Analog RF Design**
S/M/E electives: add Intro to Thermal Science; make sure to offer Math369 and Math 450. Tech Electives add: semiconductor physics/processing; mixed signal circuits; and verification course – both analog and digital; VLSI processing and RF IC design. Add more breadth with mech type courses, material sciences mixed circuits, MOS, optics, processing.

**ASIC Design**
S/M/E electives: *device physics and verification covered by existing courses. Replace ECE561 with ECE554 and count as a technical elective.*

**Systems**
S/M/E electives: delete BMS 301 and replace with an aircraft/satellite/power grid course. Add ECE501 and ECE530/531 as S/M/E’s
“Tune up” Mech 237/337. 
Tech electives: Add ECE452 and ECE411. Remove CS156 and PH353 
Offer 501 and 530 topics earlier in undergrad curriculum; add matured design exercise.

**Controls/Embedded Systems**

S/M/E electives: add controls/robotics: Math229, Math369 Math 450, Mech337, CIVE26; 
Tech electives: 
embedded add: RTOS O.S. Programming 
Add controls automation: ECE555, ECE411, ECE444, ECE340, ECE456, CS457, 
ECE569/Mech569, CS440.

**Power**

S/M/E electives: delete PH314 and replace with Mech 337. Consider adding “strength of materials”. Add a thermal course. 
Tech electives: ECE566 in addition to or replacing one of the Level II courses.

**Engineering Management**

S/M/E electives: recommend adding foundations of SE, project management, 
communication/negotiation, risk analysis, earned value courses. 
Tech electives: add ECE530, 531, 501 and 532. One commenter recommends doing away with the electives listed on the worksheet and add the previously mentioned courses. 
Add in people interactions; Make ECE501 required or replace ECON202.

**Software/Networking**

S/M/E electives: CS155, CS200 and Math369 are OK for software area – required for networking. Need to educate on software, FPGA, ASIC, Network Processing

**Lasers/Optics**

S/M/E electives: add Mech237, and a basic materials science course. 
Tech electives: add semiconductor physics/processing, ECE472 MOS

**General comments:**

Emphasize fundamentals, problem solving, and possibly add a minor in math or business instead of adding tech electives. More breadth at the technical level. Recent grads will need to have a wider view of what is out there as engineers are settling into a specialty.

Three objectives to consider regarding the ECE curriculum: employable; advanced degree; prepare for rest of their career with a good foundation. Think of the career spectrum with lots of different careers over the years.

Process vs. Content: mathematical approach needed especially for technical audience. 
Proofs are necessary.

6. **Discuss Results of Breakout Sessions**

7. **Irwin Jacobs Lecture**
8. **Senior Design Presentations**

9. **Elections Nominations**: Jason Gentry for two-year term; Scott Makinen – President.

10. **Closing Remarks (Tony Maciejewski)**