Welcome

Introducing today’s visitors and new members …

- Chuck Quire, Vaisala
- Brad Jascob, Medtronics
- Jason Gentry, Avago
- Mike Coddington, National Renewable Energy Lab
- ECE student representatives
Agenda

- Department Update & Spring Action Items
- Industry Spotlight: Advanced Energy
- ECE Strategic Plan: Current State & Vision
- Break
- CSU Applied Research and Systems Engineering Vision
- Breakout Session I
- CSU Recruitment Program
- Working Lunch & Breakout Session II
- Next Steps & Closing Thoughts
Department Update

Tony Maciejewski
Prof. and Head, ECE Department
Pre-K Student Recruiting Program

Ida May Leland – Born Oct. 7 8 lbs. 20 ½”
Department News

- ECE Welcomes Three New Faculty Members
  - Dr. Diego Krapf, Assistant Professor
  - Dr. Ricky Kwok, Associate Professor
  - Dr. Ron Sega, VP for Applied Research
Department News

- Dr. Jorge Rocca named University Distinguished Professor
- Dr. Randy Bartels selected for NAE Frontiers of Engineering
- Dr. Chandra received National Weather Service Award
Department News

Faculty Promotions:
- Dr. Randy Bartels – Associate Professor
- Dr. Kevin Lear – Professor

ECE to Celebrate 100 Years of Graduates
- call for photos, notable alumni, etc.

Upcoming Events:
- IS&T Day for High School Students: November 2, 2007
- College of Engineering Innovation Breakfasts: Bartels, November 8 (LSC)
- Engineering Internship Fair: February 13 & 14, 2008
  Still accepting nominations for ECE Distinguished Alumnus

Preparing for Upcoming ABET Visit
Best Paper Contest Winners Announced in May
- Pat Kusbel and Elliot Buller, “Control and Computing System for the Compact Microwave Radiometer for Humidity Profiling”

ECE Kicks Off Peer Mentoring Program

Department Creates New Scholarship for FIRST Participants

Academic Village Opens for Engineering and Honors Students
Spring Action Items

- Look into expanding ECE “Field Trip Day” to include additional companies. AMD expressed interest, but check with other board members as well.
  - Status: HKN is taking the lead in contacting IAB members to expand the number of companies involved in visits by students.

- Provide opportunities for students to “shadow” industry partners.
  - Status: Sent email to board. Gauging interest to determine feasibility of such a project. Favorable feedback so far.
Spring Action Items

Investigate the possibility of expanding the ECE seminar series to include two-part seminars from companies. The seminars would occur at CSU on the same day, back-to-back. The first seminar would focus on the company’s research initiatives with the second seminar being more detailed information about the company.

Status: Series is been structured to accommodate this. If anyone wants to take advantage of this opportunity please contact Branislav Notaros (notaros@engr.colostate.edu, 970-491-3537).

Have more faculty research talks at company sites. Maybe even have students present their research or projects. Periodically send the board a link to upcoming conference presentations and remind them that the faculty are willing to present at their companies.

Status: Andrea sent an email in September and list of potential talks is now posted and continuously updated at: http://www.engr.colostate.edu/ece/www_research/speaking.shtml
Spring Action Items

- Look into offering more high-level research talks as part of the ECE seminar series – presentations that provide a broader research picture including the future trends of science and technology.

  **Status:** Sponsoring joint seminars with ISTeC
  - Oct. 22: “The Internet is Flat: A Brief History of Networking in the Next Ten Years”
  - Oct. 29: “Scale-up and Scale-out: Evolution and Trends in Parallel Processing”
  - Nov. 12: “Super SOC: Putting the Whole System on the Chip”

- Continue the Engineering Career Fair.

  **Status:** The Engineering Career Fair has grown to a two-day event: February 13 & 14. All IAB companies will receive an invitation.

- Continue the ECE lecture series.

  **Status:** Dr. Branislav Notaros is heading up the second year of the ECE seminar series. If you, or someone you know, would like to give a talk as part of the speaker series, please let us know.
Spring Action Items

- Have Tony present an overview of the ECE strategic plan at the next meeting to give the board a clear understanding of the department’s goals and vision. This will allow the IAB to define areas that align with their interests and needs and better determine how they can help the department.

  **Status:** Presentation on today’s agenda.

- Create a “road show package,” a turnkey presentation that board members can share with their companies to help raise awareness about ECE.

  **Status:** “Road show” presentation is available on the web and will be continuously updated. Tony is also interested in meeting with groups to talk about the department and would like to connect with more ECE alumni at local companies.

- Ask the board for help with equipment donations by sharing a list of departmental needs.

  **Status:** Included in today’s information. Will continuously update and distribute.
Spring Action Items

- Encourage students to invite IAB members to participate in projects. This can be achieved via phone or web conferencing, technology currently being utilized in the industry.

  Status: Students have received IAB member contact information. Olivera Notaros (senior design coordinator) has sent list of design projects to IAB and posted on our web page.

- See if it’s feasible and ethical to provide IAB with advance copies of student resumes prior to the Engineering Career and Internship Fair. Advertise to students as an opportunity to get early exposure to employers.

  Status: Andrea will advertise the opportunity to students in January. She will then pass along resumes to interested employers.
Summary of Results from Spring IAB Survey

- General satisfaction with meeting format/topics and role of the IAB

- Main suggestion for improvement:
  Involve more students

If you have any other suggestions, we are always interested in your feedback
ECE Strategic Plan: Current State & Vision

Tony Maciejewski
The Department of Electrical and Computer Engineering exists to educate and prepare undergraduate and graduate students to pursue exemplary careers in the electrical and computer engineering industries and academia, and to generate new knowledge by the pursuit of research in selected areas of electrical and computer engineering.
Current State:

ECE Faculty by the Numbers

- 21 faculty
- Top 20 in US for research expenditures per faculty (almost $500K/faculty)
- Top 25 in US for citations per faculty
- 0.4 PhD per faculty (USNWR top ten ave: 0.6)
- 2.5 BS per faculty (USNWR top ten ave: 2.1)
- Bottom 20% in terms of faculty size
- Number 10 ECE Dept in the country based on Academic Productivity Index
Comparison of IEEE Fellows at “Top-Ten” ECE Depts., CSU, & CU
ECE Research Expenditures

Fiscal Year

- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007

Expenditures:

- $0 to $1,000,000
- $1,000,000 to $2,000,000
- $2,000,000 to $3,000,000
- $3,000,000 to $4,000,000
- $4,000,000 to $5,000,000
- $5,000,000 to $6,000,000
- $6,000,000 to $7,000,000
- $7,000,000 to $8,000,000
- $8,000,000 to $9,000,000
- $9,000,000 to $10,000,000
- $10,000,000 and above
## Current State: ECE Finances Fiscal Year 2007

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<th>INCOME</th>
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<td>Faculty</td>
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<td>Staff</td>
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<td>TAs</td>
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<td>(tuition + state support)</td>
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<tr>
<td>Gifts</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$2,824,991</strong></td>
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**DEFICIT**      **($322,463)**
ECE Major Research Areas

- Lasers, Optics, and Applications (7 faculty)
  - Extreme Ultraviolet Science and Technology ERC
  - Recent hires: Bartels, Krapf, Marconi

- Electromagnetics (Radar) and Remote Sensing (4 faculty)
  - Collaborative Adaptive Sensing of the Atmosphere ERC
  - Recent hires: Reising, Notaros

- Communications and Signal Processing (4 faculty)
  - Recent hire: Luo

- Computer Engineering (4 faculty)
  - Recent hire: Kwok

- Controls and Robotics (2 faculty)
Vision: Faculty and Research
ECE Short Term Hires?

- Lasers, Optics, and Applications (1 faculty)
  - EUV-based nanotechnology

- Electromagnetics (Radar) and Remote Sensing (1 faculty)
  - lidar

- Computer Engineering (2 faculty)
  - VLSI
  - analog/mixed signal design

- Biomedical Engineering (2 faculty)
  - imaging
  - biological applications of nanotechnology
ECE Long Term Hires?

- **Power/Energy**
  - Renewable/sustainable, transportation

- **Systems**
  - Large scale systems, sensor networks, robotics

- **Computer Engineering**
  - High performance computing, embedded systems, pervasive/ubiquitous/wearable computing, human-computer interaction

- **Biomedical Engineering**
  - Genomics, telemedicine, drug design, health care, elderly care, anti-terrorism
National Enrollment Trends

![Graph showing national enrollment trends from 1999 to 2004 for various engineering disciplines and total engineering enrollment.](image)
Current State: Recruitment & Retention

- Undergraduate
- Masters
- PhD
- Total

Graduate Degrees Awarded

Academic Year

Number

AY 00-01
AY 01-02
AY 02-03
AY 03-04
AY 04-05
AY 05-06
AY 06-07

ME
MS
Ph.D.
Trends in Freshmen Enrollment


- CpE
- EE

Graph showing enrollment trends from 1997 to 2007.
Undergraduate Degrees Awarded

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<td>AY 06-07</td>
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ECE Retention Rates

Disposition of 93 ECE majors who took EE100 in Fall 1999

- **Graduated**: 34 students
- **Still at CSU**: 5 students
- **Dismissed**: 12 students
- **Left CSU**: 14 students

**Total Enrollment**: 93 students

**ECE Retention Rates**
CCHE Index of Incoming ECE Freshman

Current Ave Admit
ACT=27.2, GPA=3.73

Previous Ave Admit
ACT=26.0, GPA=3.68
SAT/ACT as a Predictor of Student Success

SAT/ACT vs GPA
Average: SAT= 1196(75%), ACT=25.9(72%)
equivalent to approximately 50th overall undergrad institution

Normalized SAT/ACT vs GPA
 SAT/1600  ACT/36
Research Goals

- Increase number of faculty
- Attract the highest quality graduate students
- Publicize our achievements
- Improve research infrastructure and environment
Teaching Goals

- Be a recognized leader in education delivery
- Optimize the educational experience for our students
- Increase our students’ enfranchisement in ECE’s mission
- Improve our students’ oral/written communication skills
- Encourage research experience for undergraduates
- Continuously improve on an innovative and outsource-proof ECE curriculum
Outreach Goals

- Promote K-12 STEM education and provide opportunities for future engineers
- Encourage industry involvement in ECE’s mission
- Be a recognized leader in distance learning and information delivery
Questions?
Break
CSU Vision on Applied Research and Systems Engineering

Ron Sega, CSU VP for Applied Research
Breakout Session I:
ECE Research Thrusts of the Future

Facilitator:
Fernando Tomasel
Considerations

- Which research areas/disciplines should the ECE department consider for the future?

- As a board member, what are your concerns for the future of electrical and computer engineering?
  
  - What keeps you up at night?
  - What will be your greatest hiring needs/challenges 5-10 years down the road?
  - How can ECE help solve these issues through its curriculum and research program?
  - Which areas of emphasis make the most sense from an industry point of view?
CSU Recruitment Program

Anna Arevalos,
Director, CSU Undergraduate Recruitment
Working Lunch and Breakout Session II: Attracting and Retaining the Best and Brightest Students

Facilitator:
John Nichols, IAB Vice President
Considerations

- What are your ideas and suggestions for growing and improving the ECE department’s recruitment and retention program?

- How can the IAB help the ECE department attract and retain high ability students?
Next Steps and Closing Thoughts

Tony Maciejewski