October 14, 2005

The Engineer of 2020: Visions of Engineering in the New Century
Welcome

Introducing our new members and visitors ...

- Brian Arnold
- Paul Czarnecki
- Walt Dabberdt
- Joel Edwards
- Jim Greener
- Lance Guymon
- Dana Kirchmar
- Alvin Loke
- Fernando Tomasel
- Ernesto Wiedenbrug
Today’s Theme

The Engineer of 2020

Visions of Engineering in the New Century
Agenda

- Department Update
- Update on Spring Action Items
- Industry Spotlight: Northrop Grumman
- The Making of a Conference, Future Vision 2010
- Break
- Roundtable Discussion I
- Break
- Roundtable Discussion II
- CareerRam Demo and Working Lunch
- Next Steps and Closing Thoughts
ECE Department Update

- ECE Researchers Received National Science Foundation MRI Award to Study the Development of the Next Generation of Compact Coherent Extreme Ultraviolet Sources

- ECE and CSU Reach All-Time High for Research Funding

- ISTeC Hosted Future Vision 2010

- Dr. Sandy Woods Named Interim Dean
ECE Department Update (cont’d)

• Randy Bartels Wins GECCO Gold Medal

• EUV ERC Beams with Talented Student Researchers
  – Courtney Brewer Chosen for NSF Graduate Fellowship
  – Mark Berrill Awarded the International Society for Optical Engineering (SPIE) Scholarship

• Sharmila Padmanabhan Receives Young Scientist Award

• PEER Hosted Successful Summer Camps
ECE Department Update (cont’d)

• Current enrollment:
  – Undergraduate: 287
  – Graduate: 132

• ECE Ramps Up Graduate Recruiting with Launch of DVD

• Department to Host Reception in Honor of Dr. Aram Budak on October 15th

• IS&T Day for High School Students and Counselors set for November 4th
Introducing CSU’s Co-op Program…

Managed by the Colorado Institute of Technology, or CIT, the Front Range Cooperative Education (Co-op) Program is designed for Colorado engineering and computer science students.

Benefits to Employers:
• Early exposure and access to best and brightest students
• Cost-effective way to fulfill HR requirements
• Students work six-month sessions, which usually produce tangible work output, not just training
• Employers get enthusiasm, fresh perspective, and energy of talented young people

Benefits to Students:
• Participation in co-op program helps provide career direction
• Helps students find out what they want to do
• Provides meaningful work experience that builds on classroom education
• Enhances employment opportunities upon graduation
Considerations:

• ECE continues to attract high ability students
  - Highest percentage of students on the COE Dean’s List

• Higher minimum enrollment requirements:
  - 3.3 minimum GPA vs. 3.1
  - 105 admissions index vs. 101

• Uncertainty related to tuition hikes may have impacted enrollment
Undergrad Degrees Awarded

![Undergrad Degrees Awarded Chart]

- BSCpE
- BSEE

Calendar Year

Number

1999 2000 2001 2002 2003 2004 2005
Graduate Degrees Awarded

Calendar Year

Number

ME
MS
Ph.D.
Proposal Activity in Terms of Dollars

The chart below illustrates the proposal activity in terms of dollars for fiscal years 1993 to 2005. It shows the value submitted and the value funded for each fiscal year.

- **$ VALUE SUBMITTED**
- **$ VALUE FUNDED**
Growing Research Expenditures

ECE RESEARCH EXPENDITURES

<table>
<thead>
<tr>
<th>Year</th>
<th>Expenditure</th>
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<tbody>
<tr>
<td>1999</td>
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<td>2005</td>
<td>$8,000,000</td>
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Spring Action Items

**Action item:** Contact board to gauge their interest in the fall Student Advising Day and Graduate Study in ECE event.

**Status:** Department held Graduate Study in ECE event on August 31; three IAB members participated.

ECE hosted Student Advising Day on September 8

- Companies in attendance: 290 Ventures, Advanced Energy, Agilent Technologies, Flextronics, Hewlett Packard, IBM, LSI Logic, Northrop Grumman, Plexus Technology Group, RF Micro Devices, Western Area Power Administration

- Favorable feedback from students and employers
Spring Action Items

**Action item:** Begin polling incoming freshmen to see why they decided to go into ECE; continue to track their progress to better understand retention rates.

**Status:** Mechanism being incorporated into College’s overall recruitment and retention strategic plan

**Action item:** Send the board a list of available speaking dates and possible topics for the senior design class, asking them to either sign up for a talk or forward to the appropriate person within their company for consideration

**Status:** Andrea sent list to the board; five IAB members scheduled to speak this semester on a variety of topics. Several others planning to speak in the spring.
Spring Action Items

**Action item:** Encourage teaching the process and language associated with Six Sigma; try to get an industry representative to give a talk on the topic.

**Status:** Presented to board as a possible senior design topic - no one has expressed an interest in presenting on the subject yet.

**Action item:** Bring in a senior design speaker to talk about importance of effective communication in a professional environment.

**Status:** Bob Gann with Hewlett Packard scheduled to speak on this topic in November.

**Action item:** Ask Career Center to present the CareerRam tool at the fall IAB meeting.

**Status:** Ann Malen and Jan Behunek presenting tool over lunch.
Action item: Considering the idea of adding a “Best Paper Award” to E Days awards ceremony - industry interested in sponsoring?

Action item: Work with Career Center to create a form that employers can complete after they interview an ECE graduate. This tool can be used to begin evaluating and measuring the strengths/weaknesses of our graduates.

Status: Holding as a possible project for new Career Center liaison (interviews for new position currently under way)

Status: Programming courses added to ECE curriculum – broader range of options for students including C and C++
Industry Spotlight

Dave Henderson
Northrop Grumman

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Guest Presenters

Debra Zimmerman & Aram Ossorio

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The Engineer of 2020: Visions of Engineering in the New Century
Roundtable Discussion

Lana Hoff
Director of Marketing, COE

The Engineer of 2020: Visions of Engineering in the New Century
Roundtable Discussion

Questions for IAB

1. Based on your knowledge of the current engineering climate and the predictions for the future outlined in this book, what steps should be taken to create a learning environment that addresses the changing face of engineering? If you could start with a blank slate, how would you design an engineering curriculum?

2. How do we determine who should be an engineer? How can we reach the right students early on in their education (K-12) and encourage their pursuit of engineering?

3. What will (or should be) the relationship between industry and universities in terms of research collaborations, continuing education, etc.?
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Break
The Engineer of 2020: Visions of Engineering in the New Century
Next Steps & Closing Thoughts

Tony Maciejewski

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