Welcome IAB guests and new members

- Manish Mohanpurkar, Idaho National Labs
- Pramit Rajkrishna, Arrow
Agenda

• Refreshments and Underclassmen Project Displays
• Department Update
• Prepare for Judging at Engineering Days
• Review Projects at Engineering Days
• Working Lunch: Plans for Weaving Professionalism through the Curriculum
• Breakout Session: Review Best Practices Homework
• Discuss Results of Breakout Session
• Election
• Closing Remarks
• Social at The Mayor of Old Town
Department Update

Tony Maciejewski, ECE Department Head
Faculty Accolades

• Branislav Notaros
  – IEEE Fellow

• Carmen Menoni
  – George T. Abell Outstanding Economic Contributions

• Steven Reising
  – George T. Abell Outstanding Research Faculty Award

• Peter Young
  – George T. Abell Outstanding Teaching & Service Faculty Award

• V. “Chandra” Chandrasekar
  – Art Corey Outstanding International Contributions
Research News

• ECE researchers scan the skies for Super Bowl 50 storms
• ECE researchers develop future space-borne weather observation satellites
Student News

• ECE student honored for snowflake research

• ECE students compete in all-night “Dumpster Dive Challenge”
• 9th Annual Best Paper Contest Begins in May
  – Thanks to IEEE Plains Section for donating the prize money (Andrea has emailed Pete Oneill)
  – Contact Karen if interested

• Commencement Set for May 13th at Moby
Projects in the Works

• NSF Revamping Engineering Education
• Engineer-in-Residence program (EiR)
CSU Engineering Enrollment Trends

Number of Students

Department by Year

- B.S.
- M.S.
- Ph.D.
Freshmen Enrollment

- FA10
- FA11
- FA12
- FA13
- FA14
- FA15

- Freshmen Biom/EELO
- Freshmen Biom/EE
- Freshmen CpE
- Freshmen EE
ECE Freshmen Retention Rates

Cohort Size of First-Year ECE Students

Persistence Rates of First-Year ECE Students through the 2nd Fall

Persistence Rates Within Department by Cohort Department and Cohort Term
ECE Freshmen Retention Rates

Cohort Size of First-Year ECE Students

Persistence Rates of First-Year ECE Students through the 5th Fall

Persistence Rates Within Department by Cohort Department and Cohort Term
ECE Freshmen Retention Rates

Cohort Size of First-Year ECE Students

Persistence Rates of First-Year ECE Students through the 6th Fall

Persistence Rates Within Department by Cohort Department and Cohort Term
ECE Undergraduate Enrollment: Colorado Institutions (2010-2014)

Women in Engineering (FA15)

Undergraduate
- ECE, 6%
- CBE, 15%
- ME, 23%
- CEE, 24%
- Intra-College, 31%

Graduate
- ECE, 24%
- CBE, 5%
- Intra-College, 5%
- ME, 9%
- AS, 15%
- Bio-Med, 8%
- CEE, 33%
Graduate Degrees Awarded

Number of degrees

<table>
<thead>
<tr>
<th>Year</th>
<th>Masters</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>2011-12</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>2012-13</td>
<td>25</td>
<td>9</td>
</tr>
<tr>
<td>2013-14</td>
<td>34</td>
<td>9</td>
</tr>
<tr>
<td>2014-15</td>
<td>52</td>
<td>13</td>
</tr>
</tbody>
</table>
% of International Degrees Awarded

![Bar chart showing the percentage of International degrees awarded by calendar year for MS, Ph.D., and Total. The data is presented for the years 2008-09 to 2014-15.](chart.png)
2014-15 First Destination Survey Results

• ECE graduates earned the highest salaries in the COE
  – EE, $71,124
  – COE average, $50,497
  – University average, $47,039

• 100% of ECE grads have employment related to their major

Source: CSU Career Center
How we compare to School of Mines (recently named in top 10 for ROI)

<table>
<thead>
<tr>
<th>Bachelor's Degree Graduates Salary Survey - Electrical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-15 Avg Salary Offers</td>
</tr>
<tr>
<td>Colorado State</td>
</tr>
<tr>
<td>School of Mines</td>
</tr>
</tbody>
</table>


CSU First Destination Results Reports, 14-15 (CSU Career Center)
Update on Fall Action Items

• **Action item:** Alma will consider the board's comments then follow-up with individual IAB members to validate professional formation learning modules and content.

  **Status:** Incorporated into table distributed via email.

• **Action item:** Follow-up with board to collect best practices used in industry for developing professional skills (e.g., online modules).

  **Status:** To be discussed at this meeting
• **Action item:** Explore the idea of creating a cadre of students assigned in the freshmen year to flow through the program together. Consider having a retreat or meeting prior to the start of school to acquaint teams.

  **Status:** In planning stage with College of Business faculty member that teaches teamwork class
• **Action item:** Continue to provide enrollment data for the College of Engineering; the board is particularly interested in seeing how mechanical and ECE enrollments compare.

  **Status:** Provided at today’s meeting.
Prepare for E-Days

Alma Rosales
## Assessing professionalism in student projects

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>0 – Unacceptable</th>
<th>1 - Developing</th>
<th>2 - Exceptional</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates evidence of global and cultural awareness and adaptability</td>
<td>Does not identify any global or cultural relevance of their project.</td>
<td>With prompting identifies one or more aspects of their project or role that is globally or culturally affected.</td>
<td>Identifies global and/or cultural aspects to their role and engineering design problem, and how these aspects were included (or could be easily included) in their design.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates an ability to communicate effectively</td>
<td>Does not communicate adequately.</td>
<td>Communications are generally acceptable and appropriate.</td>
<td>Communications are excellent. Listens and responds to questions at both a high level and at a more detailed level, depending on the questions and audience.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates an awareness of engineering ethics and professional responsibility</td>
<td>Does not identify any ethical or potential ethical issues.</td>
<td>With prompting, identifies one or more possible ethical issues.</td>
<td>Identifies appropriate ethical issues and potential resolutions.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates a understanding of leadership and the role of a team leader</td>
<td>Does not identify any leadership within the team.</td>
<td>Articulates the difference between a leader, a manager, and a follower, and explains what their own role was on the team.</td>
<td>Clear understanding of the role of leadership. Provides examples of negotiations and personal leadership on the team.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates teamwork both internally and external to the design team</td>
<td>Poor distribution of work or responsibilities.</td>
<td>Team cooperation and interaction evident. Some recognition of individual team member’s skills. Not clear how the team resolved conflicts.</td>
<td>Team demonstrates professional spirit of cooperation. The team leveraged each member’s skills, and resolved conflicts by listening and collaborating with each other.</td>
<td></td>
</tr>
</tbody>
</table>

Total:
Leave for LSC Ballroom
Lunch & Breakout Session: Professionalism Best Practices

Facilitators: Alma Rosales and Lance Guymon
Note: 9 hrs per semester in sophomore and junior year have been set aside for professional skills development.
Goals for RED Professional Formation Thread

• Integrate professional skills development into engineering curriculum
• Provide knowledge and opportunities to practice skills, and assess performance
• Provide online modules to faculty and students
• Continue industry involvement
• Enlist faculty to deliver and assess professional skills development
Plans – ECE Professional Skills Development

• Professional Skills Kickoff Day
• Project based learning integrated into
  – The creativity thread
  – Knowledge Integration Modules
• Online Learning Studio Modules
  – Request assistance of IAB to research online module best practices
• Engineers Without Borders Challenge
• Industry Guest Speakers
• Cross Geography Senior Design Teams
• Portfolios of student’s professional skills development created by students
• Ongoing Faculty Reinforcement
Breakout Sessions

Challenge Question
Identify at least one standout example of a process, activity, module, or program you've encountered that teaches and builds capacities for professional skills.

- This could be something you've seen within your company (perhaps through new employee training), professional affiliations, or outside of work.

Include a recommendation of how to incorporate this example(s) into the RED professional formation thread.

Scope
- Communication
- Teamwork
- Ethics
- Cross-cultural adaptability
- Leadership
Results of Breakout Session
Facilitators: Alma Rosales and Lance Guymon
Election

Facilitator: Steve Martin