Outline:

Rankings
Speed Dating
Strategic Progress
Educational Programs
  • Diane Sieber
Next Steps
CU Engineering Mission, Vision and Values

Mission: Generate knowledge and equip students

The overarching vision of the College of Engineering and Applied Science at CU-Boulder is to be a world leader in engineering research and education.

Values & Outcomes:

- Innovative research to improve global society
- Integrated, experience-based learning
- Inclusive excellence: quality and diversity
- Technical excellence and critical thinking
- Effective communication and teamwork skills
Excellence: Perception and Reality

Perceptions of...

- Peers
- Parents
- Students
- Employers
- Donors

Realities of...

- Selectivity
- Graduate Success
- Faculty Success
- Grant Funding
- Gifts

Reality informs perception...and vice-versa!
Rankings by the National Research Council

• Published in 1995 and 2010
• Individual graduate programs only
• Based on quantitative measures:
  - Faculty (publications, citations, awards, grants)
  - Students (number, support, graduation, jobs)
  - Diversity (women, minorities, international)

• CU-Boulder rankings:

<table>
<thead>
<tr>
<th></th>
<th>AES</th>
<th>ChBE</th>
<th>CEAE</th>
<th>CS</th>
<th>ECEE</th>
<th>ME</th>
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</thead>
<tbody>
<tr>
<td>1995</td>
<td>13</td>
<td>26</td>
<td>24</td>
<td>40</td>
<td>38</td>
<td>51</td>
</tr>
<tr>
<td>2010*</td>
<td>3</td>
<td>14</td>
<td>9</td>
<td>49</td>
<td>45</td>
<td>11</td>
</tr>
</tbody>
</table>

*2010 rankings from midpoint of regression-based quality score.

Dramatic improvement in 4 of 6 departments
Rankings by the *U.S. News & World Report*

- Published annually
- College and individual programs ranked
- Undergraduate rankings based on reputation
- Graduate rankings based on reputation & metrics

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergrad Overall (Publics)</td>
<td>33 (19)</td>
<td>35 (19)</td>
<td>34 (19)</td>
<td>32 (18)</td>
<td>34 (19)</td>
<td>34 (19)</td>
</tr>
<tr>
<td>Graduate Overall (Publics)</td>
<td>39 (23)</td>
<td>40 (22)</td>
<td>39 (22)</td>
<td>36 (21)</td>
<td>34 (20)</td>
<td>34 (20)</td>
</tr>
</tbody>
</table>

Only modest change despite improved metrics
Factors Used by the *U.S. News & World Report* Need to improve reputation, size & student quality

*(college-wide ranking of graduate programs)*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Weight</th>
<th>CU Value</th>
<th>Med. Value*</th>
<th>CU Rank *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dean assessment (1-5)</td>
<td>25%</td>
<td>3.3</td>
<td>3.7</td>
<td>35</td>
</tr>
<tr>
<td>Industry assessment (1-5)</td>
<td>15%</td>
<td>3.4</td>
<td>3.7</td>
<td>39</td>
</tr>
<tr>
<td>Research expenditures</td>
<td>15%</td>
<td>78M</td>
<td>107M</td>
<td>36</td>
</tr>
<tr>
<td>Research exp per fac</td>
<td>10%</td>
<td>514K</td>
<td>542K</td>
<td>35</td>
</tr>
<tr>
<td>Ph.D. students per fac</td>
<td>7.5%</td>
<td>4.7</td>
<td>4.3</td>
<td>14</td>
</tr>
<tr>
<td>Fraction of fac in NAE</td>
<td>7.5%</td>
<td>5.3%</td>
<td>4.5%</td>
<td>23</td>
</tr>
<tr>
<td>Average GRE quant score</td>
<td>6.75%</td>
<td>160</td>
<td>162</td>
<td>43</td>
</tr>
<tr>
<td>Number of Ph.D. degrees</td>
<td>6.25%</td>
<td>86</td>
<td>114</td>
<td>31</td>
</tr>
<tr>
<td>M.S. students per fac</td>
<td>3.75%</td>
<td>6.0</td>
<td>3.6</td>
<td>10</td>
</tr>
<tr>
<td>Fraction of applicants accepted</td>
<td>3.25%</td>
<td>33%</td>
<td>23%</td>
<td>48</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>100%</td>
<td>47</td>
<td>54</td>
<td>34</td>
</tr>
</tbody>
</table>

*Among top 50 schools*
Undergraduate vs. Graduate Rankings

Close correlation between undergraduate and graduate rankings
1. In pairs, discuss 1-2 actions to improve our college rankings (3 min)

2. Repeat step 1 in new pairs (3 min)

3. Each individual fill out form with two recommended actions (2 min)
### Progress on Engineering 2020 Metrics - Growth

<table>
<thead>
<tr>
<th>Metric</th>
<th>2007 baseline</th>
<th>2012 results</th>
<th>2010 target</th>
<th>2020 target</th>
<th>2020 revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>#BS students</td>
<td>2914</td>
<td>3375</td>
<td>3100</td>
<td>3350</td>
<td>4300</td>
</tr>
<tr>
<td># MS/ME students</td>
<td>716</td>
<td>904</td>
<td>730</td>
<td>785</td>
<td>950</td>
</tr>
<tr>
<td>#PhD students</td>
<td>501</td>
<td>709</td>
<td>540</td>
<td>665</td>
<td>800</td>
</tr>
<tr>
<td>#FT, tenure-line faculty</td>
<td>156</td>
<td>163</td>
<td>175</td>
<td>203</td>
<td>215</td>
</tr>
<tr>
<td>#endowed profs &amp; chairs</td>
<td>23</td>
<td>29</td>
<td>29</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>New research awards</td>
<td>40M</td>
<td>73M</td>
<td>50M</td>
<td>80M</td>
<td>90M</td>
</tr>
<tr>
<td>College endowment</td>
<td>85M</td>
<td>93M</td>
<td>120M</td>
<td>230M</td>
<td>?</td>
</tr>
</tbody>
</table>

Faculty counts do not include those budgeted elsewhere

Enrollment growth targets already exceeded
Why Grow?

- Enhance Reputation/Rankings
- Respond to Student Interest
- Meet Employer Needs

Continue to improve quality and diversity
Student quality & diversity measures also up, but performance & retention are still concerns.

<table>
<thead>
<tr>
<th>Metric</th>
<th>2007 baseline</th>
<th>2012 results</th>
<th>2010 target</th>
<th>2020 target</th>
<th>2020 revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st-year comp ACT</td>
<td>28.0</td>
<td>29.1</td>
<td>28.2</td>
<td>28.5</td>
<td>30</td>
</tr>
<tr>
<td>3rd-semester retention</td>
<td>83%</td>
<td>86%</td>
<td>83%</td>
<td>86%</td>
<td>90%</td>
</tr>
<tr>
<td>6-year graduation</td>
<td>55%</td>
<td>60%</td>
<td>56%</td>
<td>70%</td>
<td>70%</td>
</tr>
<tr>
<td>Undergraduate women</td>
<td>18.8%</td>
<td>22.2%</td>
<td>n/a</td>
<td>n/a</td>
<td>33%</td>
</tr>
<tr>
<td>Undergraduate URMs</td>
<td>7.5%</td>
<td>10.0%</td>
<td>n/a</td>
<td>n/a</td>
<td>15%</td>
</tr>
</tbody>
</table>
Comparison with Aspirational Group


<table>
<thead>
<tr>
<th></th>
<th>FT Fac</th>
<th>BS</th>
<th>MS/ME</th>
<th>PhD</th>
<th>Res Exp</th>
<th>Stud Fac</th>
<th>PhD Fac</th>
<th>Res Fac</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007 CU</td>
<td>156</td>
<td>2914</td>
<td>713</td>
<td>493</td>
<td>51M</td>
<td>26.4</td>
<td>3.2</td>
<td>327K</td>
</tr>
<tr>
<td>2012 CU</td>
<td>163</td>
<td>3375</td>
<td>904</td>
<td>709</td>
<td>78M</td>
<td>30.6</td>
<td>4.3</td>
<td>476K</td>
</tr>
<tr>
<td>2007 Peers</td>
<td>239</td>
<td>4055</td>
<td>650</td>
<td>872</td>
<td>92M</td>
<td>23.3</td>
<td>3.6</td>
<td>386K</td>
</tr>
<tr>
<td>2012 Peers</td>
<td>243</td>
<td>5231</td>
<td>895</td>
<td>945</td>
<td>106M</td>
<td>29.0</td>
<td>4.0</td>
<td>452K</td>
</tr>
<tr>
<td>2012 Ratio</td>
<td>1.49</td>
<td>1.55</td>
<td>0.99</td>
<td>1.33</td>
<td>1.37</td>
<td>0.95</td>
<td>0.93</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Source: ASEE Profiles
Progress on Educational Programs

Residential Academic Programs:
Global Engineering-Spanish is full, at 30% over goal
• 45% female, 25% Hispanic
• Global Engineering Certificate approved

Pre-engineering Program:
Helps “ACO’d” students prepare for CEAS success
• 1641 ACO’d as of 4/24/13
• 394 confirmed in PREN
• Informed by GoldShirt findings
More Progress on Educational Programs

New Degrees:
- General Engineering Plus
- Materials Science & Engineering
- BA in Computer Science

Math and Retention – ALEKS Placement Process:
- Success in math as significant retention factor
- CEAS drives campus-wide change
- Opportunity for online, self-paced learning

We plan a further deep dive into retention for the Fall 2013 EAC meeting
Discussion of Next Steps on *Engineering 2020*

**People:** Students, faculty, staff  
- *How do we attract/retain the very best?*

**Places:** Buildings, classrooms, labs, offices  
- *Where will we fit everyone?*

**Programs:** Education, research, community  
- *What are our strategic priorities?*
How can the EAC Help?

General:
- Attend/host alumni events, and invite others
- Advocate for CU with your company or contacts
- Help “give and get” financial support

Specific:
- Serve on a task force on “Closing the Gap”
- Serve on a task force to differentiate/market our college
- Participate in a small group to advise the Dean on new/improved programs
- Draft a letter to CU leadership in support of investments in Engineering

Thank you for your engagement with CU Engineering!