Dean’s Report

Engineering Advisory Council
Resource Development Committee

Presentation on 4/11/03 by
Robert H. Davis, Dean, College of Engineering & Applied Science
VISION FOR THE COLLEGE

Excellence in Research and Education

➢ Research excellence for an improved society
➢ Education excellence for leadership and citizenship
➢ Student excellence by active learning
➢ Faculty excellence in teaching and research

“A great place with great people”

Solar Decathlon Winner

Engineers Without Borders
♦ Wayne Ambler, Herbst Program
♦ Alli Angulo, Engineering Development
♦ Robyn Knox, Engineering Development
♦ Will Medlin, Chemical Engineering
♦ George Morgenthaler, Faculty Director DLC
♦ Marc Thompson, Engineering Development
♦ Mario Vidalon, CATECS
♦ JoAnn Zelasko, Assistant Dean
College Awards – Congratulations

Congratulations!

♦ AIChE Student Chapter – Outstanding Chapter Award, American Institute of Chemical Engineers
♦ Kristi Anseth – Curtis W. McGraw Research Award, American Society Engineering Education
♦ Charbel Farhat and Michel Lesoinne – Gordon Bell Award, Institute Electrical & Electronics Engineers
♦ Terry Mayes – Charles G. McCord Award, CU Foundation
♦ Garret Moddel – Physical Science/Engineering Faculty Inventor of the Year, CU Boulder
♦ Solar Decathlon Team – Wirth Chair Award for Community, CU Denver
Dr. Kalpana Chawla operates a CU experiment on Columbia
Report on Discovery Learning Center

♦ Managing Director: JoAnn Zelasko
  - Manage and showcase DLC facility
  - Schedule and promote Bechtel Collaboratory
  - Oversee student employees, budget and space

♦ Faculty Director: George Morgenthaler
  - Assist tenants with new partnerships
  - Collect and review performance metrics
  - Support and expand outreach activities
Building Core and Shell $15.7 M
Tenant Finish $1.0 M
Video Equipment $1.4 M
Construction Loan $0.2 M
**Total Construction Cost** $18.3 M

State of Colorado $7.8 M
Private Gifts $6.9 M
College $1.2 M
Tenants $0.4 M
**Total Raised-to-date** $16.3 M

Engineering Excellence Fund $50 K
Dean’s Office $50 K
**Annual Operating Fund** $100 K
Report on Planning for the Future

♦ Exabyte Building
  - College decided not to move Computer Science
  - College recommended to move CADSWES and potentially some new research initiatives to Exabyte

♦ New Engineering Building
  - College decided not to proceed with new building
  - College investigating addition of floors and wings to current building

♦ Infant Care Center
  - College decided to not proceed on own, but possibly partner with campus-wide effort
  - Campus decided not to pursue infant care center

♦ Faculty Leadership Advancement Group
Improved retention via First-Year Projects

- Female: 71% (takers) vs. 56% (non-takers)
- Hispanics: 77% (takers) vs. 50% (non-takers)
Diversity Action Items

- Climate for Diversity Committee reconstituted
- Expansion and coordination of outreach activities
- Diversity in faculty search pools
- Sexual Harassment Policy and Awareness Workshops
♦ DLC – Naming opportunities for $2M construction shortfall and $3M endowed operating fund

♦ Named Professorships – Seek 20 endowments @ $500 K or more by 2010

♦ Hands-on Earn-Learn Program (HELP)
  ➢ Educational and programmatic service learning
  ➢ Earn and learn related to own major
  ➢ Departments provide matching funds
  ➢ Undergraduate and graduate students

♦ Dean’s Fund for Excellence
  ➢ Support for student projects
  ➢ Funds to recruit and retain top faculty
  ➢ Matching funds for equipment and facilities
  ➢ Support for Family Campaign
Engineering Development Update

♦ FY 97-03  TLE/Beyond Boundaries Campaign

<table>
<thead>
<tr>
<th>Gift Type</th>
<th>FY 97-02 Results</th>
<th>Total Campaign Goal</th>
<th>% Total Campaign Goal</th>
<th>FY 2003 Results To Date</th>
<th>FY 2003 Goals</th>
<th>% Total FY 2003 Goals</th>
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<tbody>
<tr>
<td>Endowment</td>
<td>20.0 M</td>
<td>14.9 M</td>
<td>134%</td>
<td>1.0 M</td>
<td>3.5 M</td>
<td>30%</td>
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<td>Capital</td>
<td>15.0 M</td>
<td>15.0 M</td>
<td>100%</td>
<td>1.1 M</td>
<td>1.5 M</td>
<td>71%</td>
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<td>GIK</td>
<td>22.8 M</td>
<td>12.8 M</td>
<td>179%</td>
<td>4.9 M</td>
<td>2.0 M</td>
<td>244%</td>
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<td>Current</td>
<td>16.7 M</td>
<td>11.4 M</td>
<td>147%</td>
<td>0.9 M</td>
<td>3.0 M</td>
<td>30%</td>
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<tr>
<td>TOTAL GOAL</td>
<td>74.6 M</td>
<td>54.1 M</td>
<td>138%</td>
<td>7.9 M</td>
<td>10.0 M</td>
<td>79%</td>
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♦ Dean’s Fund: FY 99: 390 K, FY 00: 290 K, FY 01: 230 K, FY 02: 250 K, FY 03: 170 K to date
♦ State Funding cut to CU-Boulder

$11 M FY03 out of $85 M (13%)
$17 M FY04 out of $74 M (23%)
~Half of cut covered by increased tuition revenue

♦ General fund budget for CU-Boulder before cuts

25% state funding
63% tuition
10% indirect costs from grants
2% other

U. Washington 1990

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<th>State</th>
<th>Tuition</th>
<th>Grants</th>
<th>Other</th>
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<td>1990</td>
<td>42%</td>
<td>35%</td>
<td>6%</td>
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U. Washington 2002

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<td>47%</td>
<td>28%</td>
<td>5%</td>
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CU-Boulder 1990

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<tr>
<td>1990</td>
<td>35%</td>
<td>24%</td>
<td>26%</td>
<td>15%</td>
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CU-Boulder 2002

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<td>43%</td>
<td>29%</td>
<td>17%</td>
<td>11%</td>
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Permanent cut: $1.5 M/yr (6% of GF)

Total College Budget:
- $26 M general funds
- $39 M grant funds
- $ 5 M gift funds
- $70 M total

Proposed Cuts:
- Educational and student programs: $700 K
- Faculty and research programs: $600 K
- Administrative and Dean’s programs: $200 K
Study performed by the University of Virginia
Center for Professional Education in Engineering and Applied Science

- Partnership between the Division of Continuing Education and the College of Engineering and Applied Science
- Focus on nontraditional students and delivery
- Include CATECS, Engineering Management M.E./M.S., Telecommunications M.E./M.S., professional certificates, short courses, etc.
- Enhanced educational and curriculum quality; expansion of educational outreach efforts
- Cash-funded enterprise via tuition paid to Continuing Education
- Operations and budget oversight by Continuing Education
- Curriculum and course content oversight by the College of Engineering and Applied Science
PURPOSE OF STRATEGIC PLANNING

♦ Wise use of limited internal resources
♦ Attract additional external resources
♦ Assess changes and progress since prior plans
  ➪ Strategic plans issued in 1987, 1992
  ➪ Strategic vision issued in 2001
♦ Common vision, objectives and goals
♦ Tactical plan for meeting goals
Overview of Strategic Planning

♦ All departments and programs participate
♦ Dean set initial vision and mission
♦ Department/programs prepare summary plans
♦ College-wide plan to build on department/program plans
♦ External and internal input and feedback
♦ Final plan by November 2003
Strategic Vision for Education

John K. Bennett
Associate Dean for Education

Areas of Focus:

- Graduate Education
- Undergraduate Education
- Educational Infrastructure
- Diversity
- Outreach
Graduate Education

- Renewed focus on graduate education at the college level:
  - Joint recruiting
  - Core courses in research methods, technical writing and communication
  - Support interdisciplinary programs
  - Training for academic and research careers (grant writing, supervising students)
  - Training for advanced professional practice
Undergraduate Education

• Renewed focus on undergraduate education at the college level:
  • Education for leadership and citizenship
  • Significant design and research experience for all undergraduate students
  • Support interdisciplinary programs and initiatives in the curriculum
  • Aggressive pursuit of external funding for educational and outreach initiatives
  • On-going dialogue on undergraduate education
Education for Leadership and Citizenship

- Prepare our students to be leaders, as well as informed and responsible members of society
  - Leadership seminars and coursework
  - “Shadows” program
- Provide the opportunity for students to acquire a fundamental understanding and appreciation of the humanities
  - Expanded role for Herbst program (piloting freshman course this spring)
  - Encourage coherent plan for meeting humanities and social science requirements (vs. least effort)
  - Strengthen students’ written and verbal communication skills
  - Digital “art gallery” in Engineering Center
- Create global perspective
  - Service-learning opportunities (e.g., ESE, EWB)
  - Make international programs more accessible to engineering students by developing technical language programs
Educational Infrastructure

• Make maximum educational use of our facilities
• Get rid of the “room full of computers” model
• Take advantage of emerging technologies
• Deploy “virtual” educational laboratories
Diversity

Engineering Enrollment Should be Representative of Society at Large

We have a long way to go:

CEAS Undergraduate Students*:
- 19.4% are women
- 7.5% are underrepresented minority students

CEAS Graduate Students*:
- 23.3% are women
- 3.6% are underrepresented minority students

* Significant variance by department
Our Fundamental Outreach Goals:

- Substantially enlarge the pool of graduating high school seniors who are prepared for and interested in undergraduate education in science and engineering.
- Make the representation of women and underrepresented minorities in this pool reflect their representation in society at large.

See “CU Engineering Outreach Initiative Highlights” for more information.
Outreach Initiatives

Key Ideas
• Focus on rural students, teachers and schools
• Highlight CU’s unique strengths
• Use our own students

Methods
• Outreach Corps -- CU students visit area schools
• Teach for Colorado – CU students in residence
• Digital Library of Science and Engineering
• Service Learning for CU Students
• Financial Aid that Meets Documented Need!
• CU Mobile Laboratory for Science and Engineering
• K-12 Curricula and Materials
• Summer Resident and Non-resident Programs for K-12 Students
• Summer Resident and Non-resident Programs for K-12 Teachers
College Vision for Research: Strategic Visioning and Tactical Actions

Stein Sture
Associate Dean for Research

- Develop nationally leading research program
- Foster opportunities for interdisciplinary centers and groups and respond to national initiatives
- Analyze and build on core strengths
- Build excellence in our Ph.D. program
• Expand multidisciplinary research
• Expand partnerships with industry and peer institutions
• Expand collaborations within the University, campus and College, such as Health Sciences Center, CU-Boulder A&S departments and groups, and between CEAS departments.
• Enhance/expand our research space on campus (3rd floors on Aero, Comp.Sci, Civil, etc. wings) and off-campus
• Aerospace Engineering and Science (~ 19 faculty; $ 6 M exp.)
• Assistive Technologies (~ 5 faculty; $ 1 M exp.)
• Biotechnology (~ 14 faculty; $ 4 M exp.)
• Computational Science and Engineering (~14 faculty; $ 4 M exp.)
• Earth Systems and Environmental Engineering (~ 24 faculty; $ 5 M exp.)
• Electromagnetics, Photonics and Electronics (~19 faculty; $ 4 M exp.)
• Information Science and Technology (~ 15 faculty; $ 4 M exp.)
• Mechanics of Fluids, Materials and Structures (~13 faculty; $ 4 M exp.)
• Micro- and Nanotechnology (~14 faculty; $ 4 M exp.)
• Materials Formation and Characterization (~7 faculty; $ 2 M exp.)
• Other (~31; $ 2 M exp.)
Building Excellence in Ph.D. Program

- Increase the number of Ph.D. students and aggressively recruit outstanding students from Colorado, nationally, internationally

- Attract and support best Ph.D. students with competitive fellowships, assistantships, etc.

- Place our graduates as faculty or postdocs at peer institutions, or in important positions in industry or government labs.
Development Initiatives and Strategy
Marc Thompson, Director of Development

- College of Engineering and Applied Science – Development Strategy
  - Establish a clear vision
  - Be sure development priorities mirror the college priorities
  - Follow an action plan with measurable outcomes
  - Set performance expectations
Making the Vision Clear

• Concise.
  – “Get out and see people.”
• Needs driven.
  – “Tell them what we need and why we need it.”
• Numbers focused.
  – Meet current FY goal of $10,000,000.
  – Increase average annual gift revenue to $13,500,000.
Putting Words Into Action

• Fully staff the development team
  – Terry Mayes – Associate Director
  – Pat Sullivan, Kristin Germain, Nancy Ollanik
  – Two new hires made
    • Alli Angulo – Development Officer
    • Robyn Knox – Administrative Assistant
  – Two additional positions approved
Performance Expectations

- Development Officers will spend 50% of their time on the road.
- As a team, we will make at least 1,500 development contacts each year.
- We should expect to close at least 150 major gifts per year.
- We will involve the Dean in donor calls at least 1 day per week.
STRATEGIC PLANNING TIMELINE

March 7  Faculty and Staff Kickoff Meeting
April 11  Engineering Advisory Council input
April 30  Department/Program Summary Plans Complete
May      Finalize Vision and Mission Statements and Key Strategic Goals for College
June-Aug Refine goals and action plans; write draft
September Solicit feedback from faculty, staff, and students; produce final draft
October  Review final draft with EAC
November Publish plan
• **PURPOSE**
  – Each department/program will have a strategic plan, guiding its foci and initiatives
  – College plan will build on department/program plans

• **CONTENT (3-6 pages)**
  – SWOT Analysis—Externally focused, quantitative
  – Strategic Objectives—Major directions and investments (4-8)
  – Goals and Metrics—How progress will be measured
  – Tactical Plans—Action plans to achieve the goals: who, what, when, how