

MINUTES AND RECOMMENDATIONS
10/24/03 Meeting of the
Engineering Advisory Council
College of Engineering & Applied Science
University of Colorado at Boulder

INTRODUCTIONS AND ANNOUNCEMENTS

EAC Chair George Sissel introduced new EAC members Ray Kolibaba (Raytheon) and Jim Voss (NASA retired, Auburn University). Former EAC member Dan Hernandez (DLH Ventures) has joined the RDC.

DEAN'S REPORT

Dean Rob Davis provided a college update and report on progress made on previous recommendations. Details are available in the slides provided with the meeting materials, and a short summary is given below.

Highlights: In the past six months, the college has hosted three national or international conferences, nine faculty have won national or international awards, and several students have received special honors, including the selection of Andrew Azman for the David Bower Award from the Earth Island Institute for his work on a bio-diesel bus. College rankings by the *U.S. News & World Report* in 2003 are 29th and 37th at the undergraduate and graduate levels, respectively.

Budget: The campus sustained a cut of \$27 M (32%) in state appropriations for FY04. This cut was partially offset by increased tuition rates of 15% (in state) and 7.5% (out of state). Considering tuition and fees together, the increase at CU-Boulder is 13% for in-state students (compared to a national average increase of 14% for 4-year public institutions). The College of Engineering & Applied Science was required to make a \$1.5 M (6%) cut in its annual general fund, and this cut was made by moving the telecommunications and engineering management programs to a cash-funded partnership (CAETE: Center for Advanced Engineering and Technology Education) with Continuing Education (saving \$762 K per year), not filling two faculty lines and replacing three senior faculty lines with junior faculty (saving \$435 K per year), and reducing or eliminating a variety of administrative programs (saving \$308 K per year).

Engineering Development: The Beyond Boundaries Campaign of FY97-FY03 resulted in \$83.9 M for the College of Engineering & Applied Science (\$21.4 M endowment, \$16.1 M capital, \$18.2 M current gifts, and \$28.2 M gifts-in-kind), far exceeding the original goal of \$54.1 M. For FY03, the total is \$9.3 M (\$1.3 M endowment, \$1.1 M capital, \$1.5 M current gifts, and \$5.4 M gifts-in-kind), down somewhat from previous years. In terms of personnel changes in the past six months, Kristin Germain and Terry Mayes have left Engineering Development, and searches are under way for their replacements and a growth position. Top development fundraising priorities for this year include the earn-learn program, endowed professorships, the discovery learning center and initiative, and the dean's fund for excellence.

Discovery Learning Center: A \$200 K estate gift has been received for the DLC, reducing the budget shortfall to \$1.8 M. The remainder will be covered with continuing fundraising efforts and/or college capital funds. All of the tenants have moved in during the past year, though some programs are not yet fully operational. To help increase the level of activity in the DLC, a pilot program of Discovery Learning Apprenticeships for undergraduates will be initiated in Spring 2004 using support from the Dean's Fund for Excellence.

Enrollments: The percentage of women in the first-year undergraduate class for the college dropped from 18.8% in Fall 2002 to 14.1% in Fall 2003. CSM and CSU also saw declines in enrollments of women, though not as large (about 2%). Associate Dean John Bennett coordinated an analysis of freshmen admissions to help identify the issues behind this decline. The admissions data show that the 1020 prospective students offered admission for Fall 2003 included 179 (17.4%) women, while the 560 accepting the admission offers included only 79 (14.1%) women, indicating that women are more likely than men to decline the offers. A survey of those students who declined our admission offers indicated that CU financial aid offers were inadequate in many cases and that direct contacts by CU with prospective students during the application process were often late or inadequate. To address these problems in the future, a Director of Outreach and Education (Kristin Germain) has been hired, our office has obtained access to the admissions database (previously the domain solely of the centralized Office of Admissions), follow up phone calls and letters will be made in a timely manner to prospective students, and a coordinated program of outreach, tracking, and visits will be initiated. Additional financial support for students (scholarships, earn-learn apprenticeships, etc.) is an important feature of the college's strategic plan. EAC members recommended providing larger scholarships to fewer individuals to help meet college goals of an outstanding and diverse student population, rather than spreading limited funds thinly across all eligible students.

Strategic Plan: An overview of the college's five-year strategic plan was presented, including selected goals and action items to support the strategic objectives in research excellence, educational excellence, and resource excellence. A draft of the plan was sent with the pre-meeting materials, and it has now been finalized and sent for copying.

DISCUSSION OF STRATEGIC TOPICS

Short presentations were made on several possible topics, and then the group brainstormed on which topics were of the greatest interest and how they might be combined. Three topics were chosen, and a discussion summary for each is provided below. Further details may be found in the attached viewgraphs that were generated during these discussions.

Recruiting, Retention and Marketing (led by John Bennett): The College does a good job in K-12 outreach, but focus is needed now on direct recruiting of individual, prospective students (juniors and seniors in high school). Lists (e.g., PSAT) showing prospective students with engineering interests should be purchased. Set goals (# and type of contacts

for top prospects) for contacting individual prospects. Hiring Kristin to lead this task is a good start. Work with Engineering Development to increase scholarships, with focus on larger amounts.

Identify our unique strengths and programs (e.g., DLC & ITLL) and market them. Define markets and target them with suitable materials. Improve web site, as it is widely used by high-school students and others. Add differentiators to the strategic plan. Include Colorado voters and state legislators in marketing importance of engineering and higher education.

Faculty diversity should also reflect goals for student diversity. Focus new hires so that they are keyed to initiatives and lead change. Establish networking and communities of faculty with common interests. Seek faculty who excel in both teaching and research, and use DLC & ITLL to help draw them in. Also, engage campus leaders (e.g., Betsy Hoffman) and others (e.g., EAC) in recruiting top candidates.

New Centers (led by Stein Sture): Important areas of national need and college/campus strength include cybersecurity, unmanned aerial vehicles, sensors, linkages of biology and engineering, materials aspects of nanotechnology, and information technology. Engage partners (CU Health Sciences Center, industry) and help (Jack Burns, Tim Fritz, ...) in going after government funds.

Infrastructure (led by JoAnn Zelasko): Adding wing extensions/expansions (such as the proposed CS 'pop-top') appear to be good bang for the buck. They could be financed, in the absence of state funds, by a combination of donor support and a tuition/fee increase. Existing space is nearly 40-years old and in need of renovation for more effective use. Dividing renovations into small, defined projects may provide for fundraising opportunities. Renovating space for a shared computing facility (with networking, power, cooling, security, etc.) is recommended. A tour was taken to see examples.

The lobby of the Engineering Center provides an opportunity for more effective use: improved seating, artwork, coffee house, wireless network. John Bennett noted that a wireless network will be installed for the college in summer 2004, using a donation from an RDC member. Creating a study/refreshment area in the DLC lobby was also discussed.

LUNCH PRESENTATION

Ryan Patterson, a sophomore in ECE, spoke about his prize-winning inventions and science projects while growing up in Grand Junction, the factors that led to his decision to attend CU, and the work he is currently doing at the Center for Life-Long Learning and Design in the DLC. The talk was very well received, and Ryan has subsequently been featured on CNN.

PROVOST'S UPDATE

Provost Phil DiStefano reviewed the state budget cuts and how he led the campus and schools/colleges to make narrow and deep cuts so that the quality of core programs was

preserved. Additional tuition increases from Quality for Colorado will allow the campus to reduce the size of the freshmen classes in the future and to focus on quality versus quantity. Quality for Colorado funds (about \$5 M this year) will go half for improved faculty salaries, recruitment and retention and for programs of distinction, with the other half for financial aid and student programs. The campus is now eligible for enterprise status, with less than 8% of its budget from the state appropriation. Enterprise status was vetoed last year by the governor, although it passed the legislature 95-5. The Provost is hopeful that enterprise status, vouchers, and tuition differentials (business, law, and engineering) will pass for FY05. Engineering would get to keep 75% of its differential.

TECHNOLOGY TRANSFER UPDATE

David Allen, Director of the CU Technology Transfer Office (TTO) reported on increases in royalty revenue (\$2.2 M in FY02 to \$3.4 M in FY03) and other measures. He noted that the university owns the intellectual property (IP) generated by employees but that students own their IP when generated as part of their education without university support and equipment. EAC members expressed ongoing concerns about difficulties in generating university-industry agreements on IP issues for industry-sponsored research.

EAC/RDC members (Vern Norviel, Bob Krebs, Nan Joesten, David Begley, Enid Ablowitz), Technology Transfer Office staff (David Allen and Ken Porter), development staff (Pat Sullivan, Marc Thompson), and college staff (Stein Sture) subsequently met and discussed how EAC/RDC members can effectively assist with reviews of faculty research with the purpose of early targeting of projects that have technology-transfer and market potential, and how the College and TTO can best respond to external “technology scouting”. The purpose is to act as expeditiously as possible on early disclosures and licensing, and secure early collaborations with related faculty members to develop and initiate invention disclosures, patent applications, and licenses as early as possible in research projects. Briefly stated, Vern Norviel and Bob Krebs will assist in the area of technology scouting and facilitating contacts with relevant industries and venture capitalists. David Allen will draft a memorandum-of-understanding, which will describe the nature of the collaboration between EAC/RDC members, the CU Tech Transfer Office, and the College, including drafts of nondisclosure agreements and related descriptions. Stein Sture is working with the campus’ Office of Contracts and Grants (Larry Nelson), who will inform him of recent research awards. With the approval of the faculty or principal investigators, Sture will forward copies of project descriptions, sponsoring agencies, etc. of recent awards to the CU Tech Transfer Office, which will then forward copies to Vern Norviel, Bob Krebs and others for their assessment. It is expected that the draft MOU will be completed within a month, and distribution of research-project abstracts will follow final agreement between all parties.

STUDENT REPORTS

Jack Zable (faculty member in Mechanical Engineering) described the industry-sponsored senior projects course in Mechanical Engineering. He then introduced students (Dylan Hushka, Sean O’Neil and others) who made a presentation on a project involving a surgical clamp that their team performed in conjunction with Valley Lab.

A second presentation was made by Zach Allen, Anna Proctor and others from the Colorado Space Grant Consortium. They described the Citizen Explorer I project and various outreach activities involving 150 kids per month.

RDC REPORT

Gary Anderson reported on the day's RDC meeting. The need to increase fundraising was expressed by Gary and by Marc Thompson. A presentation on planned giving was made by David Chadwick. Then, various fund-raising projects and needs were discussed.

The Earn-Learn program was selected as the RDC focus project for this year. Gary made a challenge of \$25,000 as a 1:1 match of donations made by other EAC/RDC members by 12/31/03, and he also challenged someone from EAC to make a similar challenge. These initial funds will allow for the Earn-Learn Program to be piloted in Spring 2004. In addition to the \$50,000 goal from EAC/RDC members by 12/31/03, the RDC set a goal of raising an additional \$225,000 for the Earn-Learn Program within one year. Action plans include soliciting support from individuals (\$50,000), foundations (\$75,000) and industry (\$100,000).

WRAPUP

The next EAC/RDC meeting will be on 16 April 2004, followed by the Distinguished Engineering Alumni Awards Banquet that evening. The meeting will have a similar format, with the RDC joining the EAC at the beginning for the Dean's overview and at the end of the day for reports and wrap-up but otherwise meeting separately during the bulk of the day. This format has the advantage of keeping RDC members informed on key issues and allowing them to interact with EAC members, but the drawback that individuals are not able to participate fully on both the EAC and RDC.

Issues to discuss at the next meeting include the final strategic plan and implementation, success of student recruitment actions and how the EAC/RDC members can help (e.g., phone calls), an update on the DLC activities, and institutional progress on legislative issues and finances. The status/plans of building projects (such as the CS pop-top) will also be discussed.