

STRATEGIC VISION UPDATE

Five years ago, we launched our strategic vision and started on a new journey together as a college. This update reports on the significant accomplishments we've achieved in line with our vision; new accomplishments that have emerged as opportunities since we crafted the vision; and goals that remain unfulfilled as we close our five-year plan. Fueling these accomplishments, our college community has grown by more than 1,200 students, 75 staff and 50 faculty since fall 2017.



VISION: ACCELERATE OUR RESEARCH IMPACT

Growth and Impact – Research awards increased in FY21 to more than \$160 million, which reflects a ~15% average growth rate for the last five years (base year FY 2017). This is the highest research awards amount in the history of the college and places the college first among all major units on campus for the FY21 funding cycle. Through cross-campus partnerships and engagement with national labs and industry partners, the college has grown the breadth of its research portfolio and its national impact. The college implemented a communications strategy that actively promotes the value of our research to the public, industry and federal and state government stakeholders. In four years, six college faculty members have been elected to the National Academies.

Increased Interdisciplinarity – Building upon our existing strengths, we launched six interdisciplinary research themes (IRTs) in 2018 to bring faculty from across the college together around broad societal challenges. Three new IRTs were initiated in 2021. The college has invested \$4 million in these themes to date through seed grants, proposal support, workshops, matching funds and program manager visits. The IRTs have resulted in center- and institute-scale research awards, including the initiation of the Quantum Engineering Initiative in the college. We also initiated the use of interdisciplinary faculty search committees in areas of national interest.

Enriched Doctoral Cohort – We increased our doctoral enrollment to 1,025 in fall 2021, a 33% increase from fall 2016. The college piloted a program to waive application fees for qualified domestic PhD applicants to reduce barriers for prospective students. We also received eight U.S. Department of Education Graduate Assistance in Areas of National Need (GAANN) grants, amounting to 180 academic years of doctoral fellowship support across the college. For fall 2021, we observed a 65% increase in underrepresented minority applicants and a 36% increase in the number of underrepresented minority applicants who accepted our admissions offers. However, fall 2021 also saw a decrease of 6% in new doctoral enrollments, a trend that will need to be monitored and corrected in coming years.

Footprint – We have added more than 250,000 square feet to our college footprint, including more than 100,000 square feet of research space and shared research facilities. We have also renovated an additional 100,000 square feet of our existing facility. Additional research spaces have been developed in the SEEC/SEEL complex, the north wing of the Engineering Center, the Discovery Learning Center, the Computer Science wing, and the Electrical, Computer and Energy Engineering wing. A full-time staff director and part-time faculty director have been hired for the Colorado Shared Instrumentation in the Nanofabrication and Characterization (COSINC) Facility.

CEAS became the first academic unit in University of Colorado Boulder history to meet a building campaign goal, surpassing our \$45 million fiscal obligation toward construction of the new Aerospace Engineering Sciences Building. We have added the Rustandy Building connector to physically link the engineering and business colleges with devoted entrepreneurial space.

STRATEGIC VISION UPDATE



VISION: EMBRACE OUR PUBLIC EDUCATION MISSION

Growth – The number of students served by our college surpassed 8,000 (including more than 5,500 undergraduates) in fall 2021, a 21% increase over five years. We have also grown our transfer student population by more than 50% since 2017. 17% of all undergraduates in fall 2021 came in as transfers, both external and from other colleges at CU. Our first- to second-year campus retention rate has been 90% or above since fall 2016, and our 6-year campus graduation rate has been 77% or higher the last five years and 81% for each of the past two years. The six-year graduation rate in CEAS was 70% most recently, our highest engineering graduation rate to date. We have started a new Biomedical Engineering Major and new Computational Biology and Quantum Engineering Minors. Undergraduate scholarship funding increased above \$7 million in AY21-22, a 100% increase relative to AY16-17. At the graduate level, we have seen a 32% increase in MS students and a 7% increase in PhD students.

Diversity – Two years ago, the college set a goal of being the first public engineering college to reach gender parity while reflecting the demographics of our state's high school graduates in its undergraduate population. In 2019, our incoming first-year cohort was 44% female and 17% students from historically underrepresented backgrounds (URM). In fall 2021, while still recovering from COVID-19 impacts on enrollment and diversity, our first-year cohort was 32% women and 21% URM. We continue to work on this goal and are hopeful that once we can have prospective students back on campus on a regular basis for visits, we will continue to make positive progress on this goal.

Student Services and Success – The college refined the professional staff undergraduate academic advising model to feature disciplinary- and functional-based “neighborhoods” that create community and enable professional development. We expanded the advising outreach to include initiatives specific to transfer students; justice, equity, diversity and inclusion; and intercultural competence. We developed academic coaching services, in which students work with a professional certified coach on improving academic and life skills. We increased the number of need-based scholarships and introduced Income Share Agreements for upper-division students to be able to finish their degrees and not “stall out” financially. In partnership with Student Affairs, we introduced two engineering embedded licensed counselors for undergraduate and graduate students. We launched the ProReady initiative and aligned with Engineering Career Services to guide students to a clear understanding of how to best prepare for the professional world. In 2020, thanks to significant donations, the BOLD Center benefited from a \$1.5 million physical renovation. The college created a student success subcommittee of the Undergraduate Education Committee, called the Student Success Strategy Team, which focuses on engaging stakeholders in investigating and recommending changes to college-wide undergraduate student support structures to improve retention and graduation rates, student belonging, student equity and wellness.

Reach – The college has expanded its partnership program with Colorado Mesa University, rolling out new degrees in civil engineering and electrical and computer engineering, and created a new partnership program with Western Colorado University with degrees in mechanical engineering and computer science. The college has also created well-lit pathways for transfer students from all of Colorado's community colleges, including the creation of 2+2 and 2+3 programs with our community college partners. The college is leading campus innovation around online education with our applied computer science post-baccalaureate degree and electrical engineering MOOC-based graduate degree. Providing these degrees online advances our vision to deliver CEAS education to students around the world.

Seven CEAS undergraduate programs ranked in the top 20 by *U.S. News & World Report* (2022)

#6 Aerospace | **#9** Environmental

#15 Chemical | **#17** Civil | **#18** Computer Science | **#18** Mechanical | **#19** Electrical



STRATEGIC VISION UPDATE



VISION: INCREASE OUR GLOBAL ENGAGEMENT

Global Community – The college has grown as a global community and has the largest percentage of international students of any unit on campus. In fall 2021, 29% of our graduate students and 7% of our undergraduate students were international. In 2021, the Europe-Colorado Program launched as a replacement to the Balsells Mobility and Fellowship Programs. Given the disproportionate impact of COVID-19 on international students, the college founded the International Student Advisory Board (ISAB) in fall 2020 to better understand and respond to the needs of our international student community.

Global Engineering – The college has established itself as a leader in global engineering. Through the Mortenson Center this year, 65 graduate students and 140 undergraduate students are engaged in global engineering coursework, research and practice. The Global Engineering Residential Academic Program welcomed a record cohort of 117 students, and through the Introduction to Global Engineering course, these and 19 other undergraduate students are engaged in the Engineers Without Borders Engineering for People Design Challenge, competing with teams of students around the world to propose solutions for a remote, marginalized indigenous community in Australia.

2020 was set to be a record year for both education abroad participation and CEAS faculty-led global program options. Specifically, faculty-led programs were set to run around the world and represented a number of CEAS undergraduate programs: Engineering Leadership, the Global Engineering RAP, the Engineering Honors Program, and the Herbst Program for Engineering, Ethics and Society. Moreover, two new partner programs were approved to open in 2020 to provide summer engineering and computing courses in Buenos Aires, Argentina, and Rome, Italy. In an unprecedented move, CU summoned all spring 2020 study abroad students to return to the United States early, and most programs were subsequently suspended for the remainder of 2020 in response to the COVID-19 pandemic.

Alumni Engagement – The college established an alumni engagement team at the start of 2018 to better engage its 40,000+ alumni community and strengthen the college's alumni network. Over the last four years, the team has engaged nearly 6,100 alumni, students, faculty and staff attendees through 91 virtual and in-person events. They also created an online library of recorded events for future reference. Additionally, alumni and friends of the college volunteered more than 2,100 times, making an impact through advisory boards, mentoring opportunities, and sharing their skills and expertise with students through classroom presentations, student organizations or various networking opportunities. The Graduates of the Last Decade (GOLD) Board was re-established, and a new Regional Network Ambassador volunteer role was created, with nearly 40 alumni participating.

During the summer of 2020, the campus-wide Forever Buffs (online) Network was launched, and the college's group has 1,750 members, including 1,200 alumni. The majority of those members are willing to help students with career exploration, networking and mentorship. A new Alumni Engagement Medal will make its debut at the 2022 Distinguished Engineering Alumni Awards recognition program, providing academic programs throughout the college and the BOLD Center the opportunity to recognize highly engaged alumni from their area.

While the alumni engagement team has made a profound impact over the past four years, there is still opportunity to further establish best practices and coordination of alumni engagement efforts across the college with all departments and programs. Getting alumni further integrated into the student experience, so all students understand and value the importance of lifelong engagement with the college, will both provide meaningful opportunities for alumni to be more involved and give students valuable insight and advice from accomplished professionals. It is important for the scaling of engagement opportunities to be sustainable and in alignment with the goals of the college.



STRATEGIC VISION UPDATE



VISION: ENRICH OUR PROFESSIONAL ENVIRONMENT

Open and Expanded Communications – The college has held open forums to improve communication regarding immigration, DACA, sexual harassment, work-life balance and mental health. We significantly increased communication of college highlights and events internally and externally. In 2020, we hosted a 21-day Equity Challenge for all college employees and created a biweekly CEAS employee newsletter for greater transparency. We created an anonymous feedback form that is regularly used by the college community, and the college created a staff council to facilitate communication of staff issues and work with the leadership on matters that impact staff.

Broader Input in College Operations – The college has sought input on a broad range of matters in decision-making. Examples include collaboration with departments and programs regarding temporary and continuing budget cuts during the pandemic. Endowed chair assignments are made in close coordination with our department chairs. The college released an open call to all CEAS faculty prior to the creation of our Interdisciplinary Research Themes. As the college moves in step with the campus toward a new budget model, leadership will work in collaboration with the units to ensure continuity of operations and determine the best path forward for this multi-faceted organization.

Clarified Roles and Responsibilities – We have worked with department chairs to strengthen the roles and responsibilities of these critical leadership positions. We have also strengthened the role of the units in annual faculty/staff evaluations. The college has empowered the Undergraduate Engineering Council and Graduate Engineering Council in curriculum matters. Following a college-wide discussion, we changed how college undergraduate advising staff are supervised and are exploring changes to graduate advising reporting structure. In addition, we have created a professional administrative team to provide direct HR and finance support to our college programs.

Community Building Across the College – We assessed our professional environment in January 2017 through our first college climate survey. We have held implicit bias and Crucial Conversations training across the college, and we were the first unit on campus to achieve 100% compliance with campus sexual harassment training policies. In August 2018, the college joined NCWIT's Pacesetters program to increase the inclusiveness of our professional environment. In 2021, a professional development fund was established for staff to support professional growth of our employees. We piloted a new spouse/partner program as part of annual faculty searches. The Engineering Center became the first building on campus to become 100% free of plastic beverage containers.

Improved Equity in Advancement and Career Progression – We advocated and got approval for improved titles for our instructor-rank faculty and an additional promotional opportunity for senior instructors/teaching professors. We initiated and enacted industry-leading practices to ensure that all faculty searches are conducted with diversity, equity and inclusion goals in mind. We created and utilized a new salary pool for staff and instructor compressions as part of the college budget. We also increased use of pre-emptive faculty retentions across college. We nominated and advocated for additional campus appointments for a significant number of CEAS faculty and staff. The percentage of women and underrepresented members of the college leadership team grew from 30% in fall 2016 to 48% in fall 2021. We increased the number of endowed faculty positions across the college by 20% and developed a college procedure to ensure that a broader group of faculty are nominated for college, campus and national awards.

