



**2020
STRATEGIC PLAN**

COLLEGE OF ENGINEERING



Colorado State University

THE COLLEGE OF ENGINEERING plays a vital role in fulfilling Colorado State University's land-grant mission. We provide a transformative education that equips our graduates to become leaders and innovators. We conduct research that provides solutions to not just the grand challenges of today, but those of tomorrow. We provide service to society that translates ideas into reality and spurs economic development. The values embodied in the land-grant act are the foundation for what we do.

Much has changed over the last five years. Enrollments have increased more than forty percent, and external funding for our research enterprise is at record levels. We have made significant progress in enhancing the diversity of our students and faculty. The academic quality of our students has never been higher. Many programs and faculty have achieved unparalleled success and recognition.

We have grown the number of faculty by ten percent in two years. Through the generosity of our students, alumni, and donors, we built the Suzanne and Walter Scott, Jr. Bioengineering Building, a state-of-the-art teaching and research facility. As we continue to grow and direct new resources, establishing clear priorities that enable strategic investments in key areas of excellence is critical.

In 2015, the College embarked on a strategic planning process to continue our pursuit of excellence. The process included input from stakeholders, including faculty, staff, students, alumni, industry leaders, and the Dean's Advisory Board. This 2020 plan includes enduring goals

that define who we are and what we do. The plan also includes strategic initiatives that advance our highest priorities and create value for our students and faculty, CSU, Colorado, and beyond.

An implementation plan and committee will be established for each of the five strategic initiatives. These committees will identify specific actions needed to achieve success with the initiatives. Quantitative metrics will be developed, and progress toward 2020 targets will be measured each year of this plan. An annual report on progress will be prepared and shared with the College's stakeholders.

With our recent growth and achievements, we need to ensure that our current objectives are aligned with our aspirations and that we establish a plan for actions that enable progress toward achieving those objectives. This strategic plan brings clarity to the priorities for the College, identifies new initiatives that will advance excellence across the College, and guides future investments supporting positive changes and growth for 2020.

My thanks to everyone who participated in creating this plan and to all of you who are vital to the success of the College of Engineering. I encourage you to review the plan and join us in making it a reality in the years to come.

DAVID I. McLEAN
PROFESSOR AND DEAN

OUR LAND-GRANT HERITAGE



Colorado State University came into existence as part of Abraham Lincoln's vision to make a university education available to every American. President Lincoln signed the Morrill Act, which was created and is designed to enable all citizens of the United States to participate in and to contribute to the nation's economic and social progress.





**COLLEGE OF
ENGINEERING MISSION**

EDUCATE, INNOVATE, CULTIVATE, AND
ENGAGE IN ORDER TO GENERATE NEW
KNOWLEDGE, IMPROVE QUALITY OF LIFE,
AND POSITIVELY IMPACT SOCIETY.

**“I feel like the College of Engineering really
wants me - and everyone - to succeed. I feel like
I have an opportunity to make myself here.”**

*- Lucas Suazo, Biomedical Engineering and
Chemical and Biological Engineering, '16*

ENDURING GOALS



SHARED VALUES

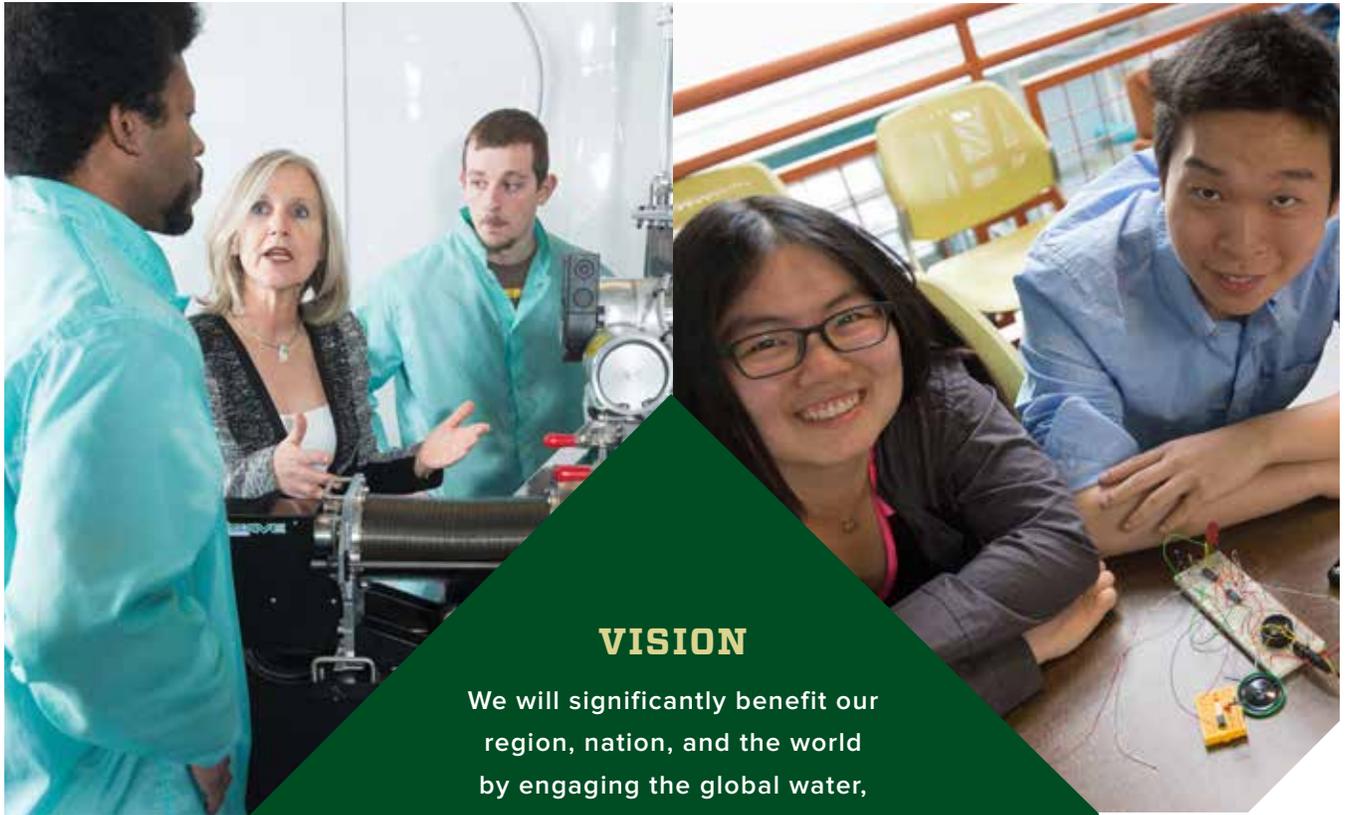
- EXCELLENCE
- INCLUSIVENESS
- COLLABORATION AND RESPECT
- CREATIVITY AND INNOVATION
- PASSION
- INTEGRITY
- TRANSPARENCY AND ACCOUNTABILITY

1. EDUCATE

Provide a transformative education that equips engineers and scientists to become leaders with a passion for making a difference in the world.

2. INNOVATE

Meet societal challenges and make a global impact through innovative and collaborative research.



VISION

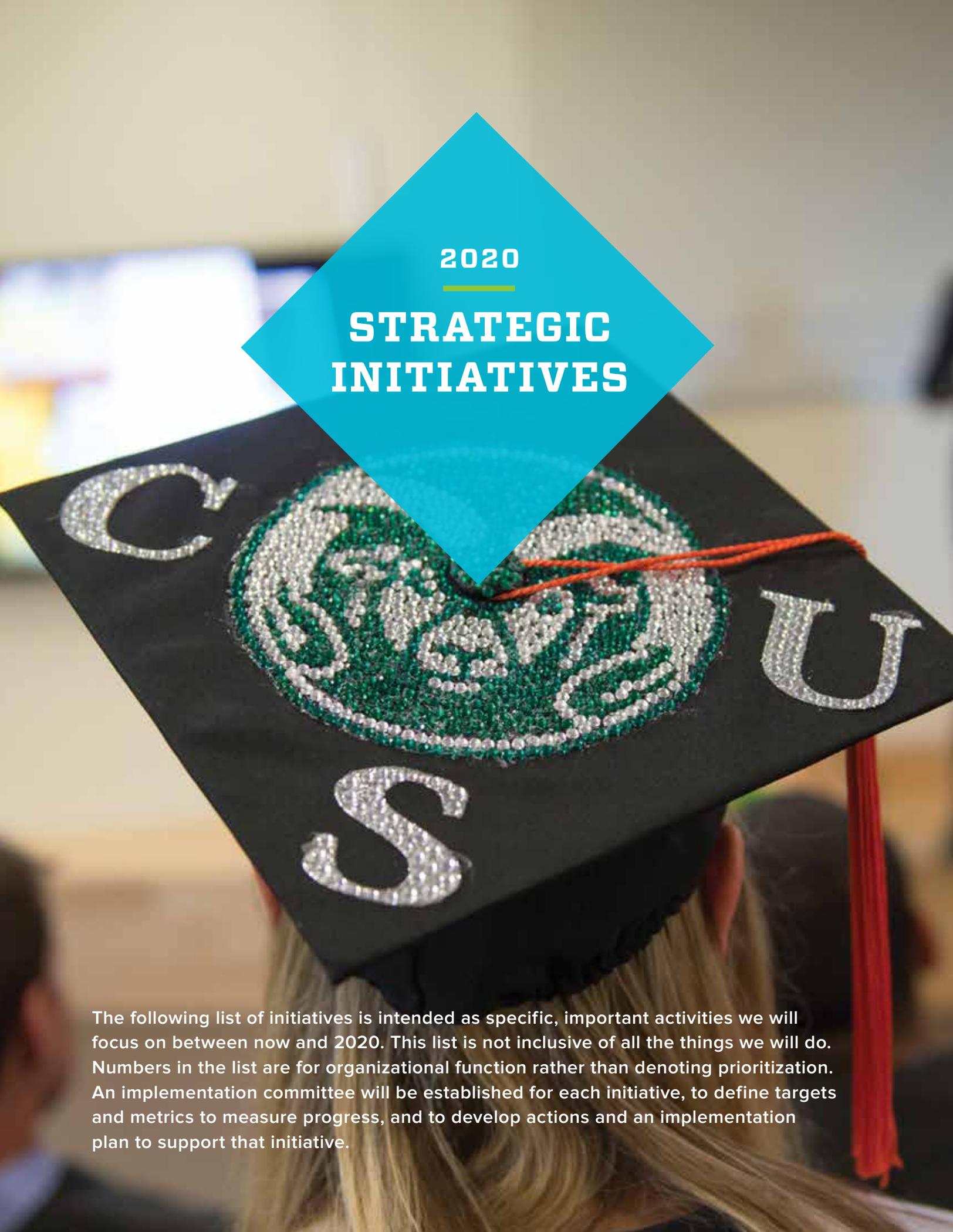
We will significantly benefit our region, nation, and the world by engaging the global water, health, energy, and environmental challenges of the day through leadership in research, education, innovation, and engagement.

3. CULTIVATE

Foster a community with a culture of purpose and inclusiveness among faculty, staff, students, alumni, donors, and community partners.

4. ENGAGE

Create a globally aware community that builds partnerships that intentionally extend beyond campus.



2020

STRATEGIC INITIATIVES

The following list of initiatives is intended as specific, important activities we will focus on between now and 2020. This list is not inclusive of all the things we will do. Numbers in the list are for organizational function rather than denoting prioritization. An implementation committee will be established for each initiative, to define targets and metrics to measure progress, and to develop actions and an implementation plan to support that initiative.

1

Accelerate innovation and enhance learning experiences for our students in order to improve and bolster student success

The College of Engineering places a strong emphasis on experiential learning, and we will build on this attribute for both undergraduate and graduate students in order to foster leadership skills. By strengthening support and recognition of pedagogical innovation and teaching excellence, we will ensure the College is keeping the student experience at the forefront. We aim to give our students the advantage they need to transition into the engineering profession and secure leadership roles in advanced technology fields.

“The education, the experiences, and the opportunities that CSU provided helped set up my career, from the technical aspects to learning how to work with people and how to lead.”

- Brittany Stinson, *Engineering Science, '02*



BY 2020, WE WILL ...

- 1.1** Create more opportunities for student-centered active learning, team-based problem-solving and design projects, undergraduate participation in research, and extracurricular involvement
- 1.2** Increase the number of undergraduate students participating in internship or co-op experiences
- 1.3** Improve the retention and degree completion rates of our undergraduate students
- 1.4** Expand opportunities for development of leadership skills, international experiences, and participation in multidisciplinary programs and activities
- 1.5** Incorporate innovation and entrepreneurship into a range of courses and projects through collaborative initiatives with other CSU colleges and programs as well as with industry partners

2

Strategically grow enrollments in COE's undergraduate and graduate programs by recruiting and retaining a well-qualified, energetic, and academically and culturally diverse pool of students



“It was very tough, and I struggled in the first year and a half, but the larger community at the College of Engineering let me know I could do it. I found the faculty to be engaging and supportive, and it was a positive, life-changing experience.”

- Ginger Evans, Civil Engineering, '77; M.S., '79

The College has had significant success in recent years in attracting well-qualified students into our undergraduate programs, and while we anticipate all of our undergraduate programs will grow, opportunities for growth are strongest in civil engineering, computer engineering, electrical engineering, and environmental engineering majors. Maintaining growth among all departments is an important component of ensuring diversity, and we will work to retain our high-quality cohort and guide them through our programs to graduation and success.

BY 2020, WE WILL ...

- 2.1** Grow the number of students in our degree programs in support of CSU's 2020 Plan for enrollment growth across the University
- 2.2** Explore creation of new undergraduate programs in response to student interests and employer demand
- 2.3** Focus recruiting efforts on attracting high-ability and more diverse students
- 2.4** Identify at-risk student populations and improve retention rates of these students
- 2.5** Grow our doctoral programs, which will enhance the reputation and ranking of our graduate programs
- 2.6** Increase emphasis on professional master's programs, including course-work only and online delivery of master's degrees

3

Develop and sustain exceptional research programs with national and international impact

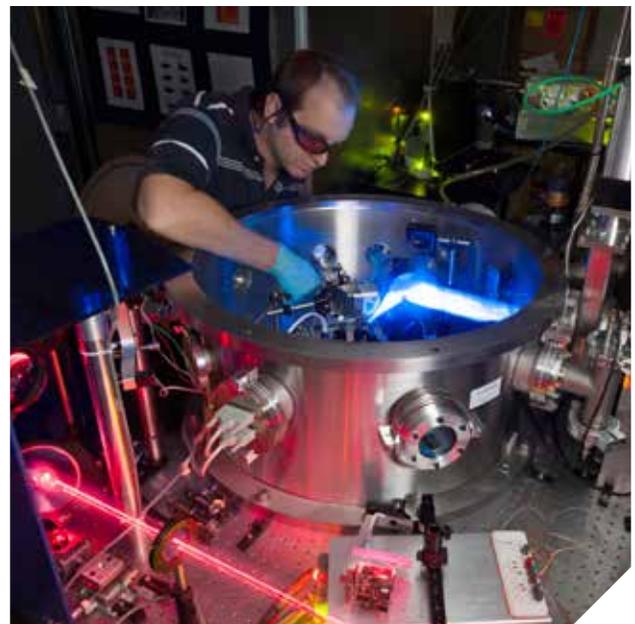
We have strong and long-standing reputations for research excellence in atmospheric science, meteorological measurements, climate modeling, water, and advanced lasers and optics. We also have emerging research capacity and strengths in biomedical engineering and health, energy, and research on preserving and enhancing our nation's infrastructure. Maintaining our existing reputation and generating recognition for growing programs are crucial components of ensuring the quality and impact of the College's research activities.

“From my internship, I have learned a variety of things about myself and engineering. I have learned how to work in teams in order to approach and solve a problem and how to work more efficiently in teams. I also have learned what I like when it comes to engineering projects and development – I really enjoy designing and simulating circuits and then seeing how they function in real life.”

– Connor Watkins, Biomedical Engineering and Electrical Engineering, '16

BY 2020, WE WILL ...

- 3.1** Focus new and existing resources to support and advance research in areas providing opportunities for strategic growth and greatest impact
- 3.2** Enhance the College's national and international reputation by advancing success in our strategic research areas
- 3.3** Foster stronger connections and collaborations across disciplines through joint faculty appointments, expanded support for interdisciplinary research activities, shared laboratory space, and focused integration of undergraduate and graduate students in interdisciplinary research and innovation



4

Increase COE's contributions to economic development, public policy, and societal needs regionally, nationally, and internationally



As a land-grant university, CSU has a core mission for public engagement and service that contributes to the economic and societal progress of our state and nation. The integration of education and research creating knowledge for the public good is an overarching goal for the College of Engineering.

Colorado is a thriving environment for corporations and entrepreneurs. The College of Engineering fosters corporate research partnerships; student co-op, internship, and job opportunities; and tech transfer activities. We meet industry needs by providing skilled graduates for the workforce and through impact of the research conducted in the College. Researchers also contribute to the economy by creating startup companies and by licensing inventions and technology. We make meaningful contributions and serve as a resource for important regional, national, and global issues.

BY 2020, WE WILL ...

- 4.1** Respond to the growing industry need for skilled engineers and scientists by increasing the number of students we graduate at all levels
- 4.2** Expand distance-delivery of course work, certificates, and degrees to working professionals
- 4.3** Increase opportunities for engagement in and discussion of important current issues facing society and our world
- 4.4** Promote extracurricular activities to enable our students to engage in service projects and international experiences

5

Enhance the diversity of COE students, faculty, and staff, and promote a culture of inclusiveness

Creativity and innovation are fostered in environments where diversity and inclusion exist. Incorporation of these values into our teaching and research programs is essential to ensure that the knowledge created and the students we graduate are connected to our global society.

“Senior Design was an incredibly rewarding experience. We put in many long hours and our fair share of blood, sweat, and tears; however, we can all stand proudly by what we have accomplished.”

– Caley Follmer, *Mechanical Engineering, '15*

BY 2020, WE WILL ...

- 5.1** Nurture a culture of respect for different views, personal backgrounds, and life experiences among our students, faculty, and staff
- 5.2** Expand our efforts to recruit and retain a diverse faculty and student population
- 5.3** Ensure all qualified students have access to an engineering education and to the support networks required to achieve success in their academic programs



STATE YOUR PURPOSE

• THE CAMPAIGN FOR COLORADO STATE UNIVERSITY •



Colorado State University
COLLEGE OF ENGINEERING

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An equal-access and equal-opportunity University.